



TOOELE ARMY DEPOT Tooele, Utah

Monitoring Well D-12 Completion Report Phase II RFI Groundwater Investigation

Contract Number: GS-10F-0179J



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of Engineers®**

Submitted to:
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Sacramento District

December 2005



Prepared by:
PARSONS and **KLEINFELDER**
Salt Lake City, Utah

**MONITORING WELL D-12 COMPLETION REPORT
PHASE II RFI GROUNDWATER INVESTIGATION
TOOELE ARMY DEPOT
TOOELE, UTAH**

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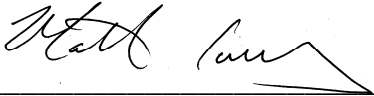
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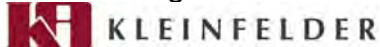
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ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter
ASC	Analytical Services Center
ASTM	American Society for Testing Materials
bgs	below ground surface
btoc	below top of casing
EPA	Environmental Protection Agency
gpm	gallon per minute
IWL	Industrial Wastewater Lagoon
NAD	North American Datum
NEB	Northeastern Boundary Plume
NGVD	National Geodetic Vertical Datum
NTU	nephelometric turbidity unit
NPL	National Priorities List
PCE	tetrachloroethylene
PDB	passive diffusion bag
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RL	reporting limit
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TEAD	Tooele Army Depot
UAC	Utah Administrative Code
UDEQ	Utah Department of Environmental Quality
UID	Utah Industrial Depot
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
VOA	volatile organic analysis
VOC	volatile organic compound

1. INTRODUCTION

This report contains detailed information regarding the drilling, construction, development, and sampling of groundwater monitoring well D-12, located on private property northeast of the Tooele Army Depot, Utah (TEAD). This report was prepared for the U.S. Army Corps of Engineers (USACE), Sacramento District, under Contract GS-10F-0179J, on behalf of TEAD by Kleinfelder, Inc., (Kleinfelder) and Parsons in Salt Lake City, Utah.

TEAD is an active military facility located approximately 35 miles southwest of Salt Lake City, Utah (Figure 1.1) and it has been in operation since 1942. TEAD has been a primary storage, maintenance, and disposal facility for conventional munitions since its inception. Due to impacts to groundwater quality resulting from this activity, TEAD was added to the National Priorities List (NPL) under the federal Superfund program in October 1990.

1.1 BACKGROUND INFORMATION

Historical wastewater discharges to the unlined Industrial Wastewater Lagoon (IWL) at TEAD resulted in a large impacted groundwater plume beneath the eastern portion of the Depot. A large number of monitoring wells, piezometers, extraction wells, and injection wells have defined a trichloroethene (TCE) plume along downgradient, northern, and western extremes of the Depot. This occurrence of impacted groundwater was designated the Main Plume.

In 1986, TCE was detected in an offsite production well located north of the Industrial Area, approximately 5,000 feet northeast of the IWL. In 1994, well C-10 was installed at the northeastern boundary of the Depot. TCE was detected at a concentration of approximately 240 micrograms per liter ($\mu\text{g/L}$) in groundwater sampled from well C-10, located directly across the road from the impacted offsite production well (Kleinfelder, 1998).

Additional groundwater investigations were conducted to further assess the nature and extent of groundwater contamination at the northeastern boundary of TEAD. These additional investigations indicated that the contamination in well C-10 and the adjacent offsite production well had likely originated from a different source than that attributed to the Main TCE plume. Thus, two distinct plumes of groundwater contamination were indicated. This second, more easterly plume, was designated the Northeastern Boundary (NEB) Plume. The oil-water separator at Building 679 in the former industrial area (now the privately owned Utah Industrial Depot [UID]) was identified as a major source of this plume (Kleinfelder, 2002).

A subsequent investigation was designed to define the approximate offsite extent of the NEB Plume. The plume, which is relatively narrow beneath the former industrial area, extends

approximately 16,000 feet downgradient (to the north) from the identified source at Building 679 (Parsons, 2003a). The installation of groundwater monitoring well D-12 was conducted in accordance with the Phase II Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Solid Waste Management Unit (SWMU) 58 Work Plan (Parsons, 2003b) and Work Plan Sampling and Analysis Plan Addendum 1 (Parsons, 2004) that were approved by the USACE and the State of Utah Department of Environmental Quality (UDEQ) prior to initiating fieldwork.

1.2 PROJECT PURPOSE AND SCOPE

Monitoring well D-12 is one of eight groundwater monitoring wells installed between September 2004 and January 2005 during the Phase II RFI at SWMU 58. SWMU 58 encompasses the source areas and the areas impacted by the Main and NEB TCE Plumes. Objectives of the groundwater investigative component of the Phase II RFI are to:

- Refine the vertical limits and lateral extent of the Main and NEB chlorinated solvent plumes;
- Further characterize the distribution of contaminants within the plumes;
- Ascertain whether there are additional contaminant sources to the NEB Plume and assess their impacts to groundwater;
- Assess the risks to human health associated with the unmanaged (offsite) portion of the NEB Plume; and
- Refine the existing numerical groundwater flow and solute transport models with respect to fate and transport, in order to better predict the potential extent (stability) of the plume in the future.

Investigative efforts described in this completion report were supervised by a Kleinfelder State of Utah-registered geologist who was present for critical on-site activities. Before drilling began, a Right-of-Entry Permit was obtained from Tooele County, and a permit for well construction was obtained from the State of Utah Division of Water Rights. Copies of the Right-of-Entry Permit, the Request and Authorization letters, Applicant Start Card, and Driller Start Card are included in Appendix A. Underground utility clearance was obtained through the Blue Stakes Location Center.

Monitoring well D-12 was drilled, constructed, developed, and sampled between September 2, 2004, and November 23, 2004. Drilling and construction activities were conducted by Layne Geoconstruction (Layne) of Salt Lake City, Utah. Following completion of the well, Layne issued a Well Driller's Report, which is also included in Appendix A. Well development and groundwater sampling were completed by Veolia Water North American Operating Services, LLC, which operates the groundwater treatment plant at TEAD. Passive diffusion bag (PDB)

samplers were installed in monitoring well D-12 on November 4, 2004, and retrieved on November 23, 2004. Laboratory analyses were provided by Analytical Services Center (ASC) of Lancaster, New York, a division of Ecology and Environmental, Inc. (E and E), a State of Utah and a USACE-certified analytical laboratory. Down-hole geophysical logging was performed by RAS, Inc., of Golden, Colorado.

Monitoring well D-12 is located about one mile east of the northeast boundary of TEAD in the NE ¼ of Section 19, T3S, R4W, Salt Lake Base and Meridian. The well is accessed via the abandoned railroad grade from Rogers Road. The primary purpose of monitoring well D-12 is to serve as a sentinel well that will detect lateral spreading of the NEB groundwater plume to the east and/or northeast in this area. A secondary objective of this and other sentinel wells that are being installed along the eastern margin of the NEB plume is to better define groundwater flow (Parsons, 2003b).

2. DRILLING, SEDIMENT SAMPLING, AND LOGGING METHODS

2.1 DRILLING

Groundwater monitoring well D-12 was drilled by Layne Geoconstruction of Salt Lake City, Utah between September 2nd and September 21st, 2004 using a Becker AP-1000 percussion hammer drilling rig manufactured by Drill Systems. The AP-1000 advances a dual-walled 10-inch diameter drill pipe into the subsurface by means of a diesel-powered pile hammer. Circulating air supplied by an onboard and auxiliary compressor is pumped down the space between the inner and outer walls of the drill rod to the drill bit, where drill cuttings are picked up and carried back through the center of the drill rod and out of the borehole as the air returns to the ground surface. Cuttings are separated from the discharging air by a cyclone. The dry cuttings were collected and spread on the ground around the well site whereas saturated cuttings were contained in 55-gallon drums pending analytical results.

Consolidated bedrock was unexpectedly encountered in the borehole at a depth of 346 feet below ground surface (bgs). The Becker Hammer rig was not able to penetrate the bedrock and a Schramm rotary drill was mobilized to the site. A 5 3/4-inch diameter down-hole hammer was lowered through the 6-inch ID dual wall drill rod to the bottom of the boring using the Schramm. The borehole was then advanced without casing an additional 24 feet into the bedrock to a depth of 370 feet bgs. Broken rock and caving at 365 feet bgs prevented further penetration without risking loss of the drillstring.

2.2 SAMPLING OF DRILL CUTTINGS

Drill cuttings were observed continuously as they discharged from the cyclone and were collected in 1-quart bags and chip trays. The cuttings were logged at 5-foot intervals or when significant changes in lithology occurred. Drive sampling, used in previous boreholes drilled as part of this program, was rarely successful due to refusal in coarse sediments and an inability to anticipate encountering thin fine-grained layers. Thus, a more accurate and complete borehole log resulted from continuous observation of cuttings from the cyclone.

Drill cuttings were logged using the American Society for Testing Materials (ASTM) Method D2488-00. The Unified Soil Classification System (USCS) was used for designating the various types of unconsolidated material encountered. Where a conflict between the two methods was identified, the ASTM convention took precedence. Color of the drill cuttings (when wetted) was noted by referencing the Munsell color chart system. Estimated percentages of gravel, sands, and fines; degree of roundness and lithology/mineralogy of any gravel clasts; moisture content; degree of cementation; and any other notable attributes were routinely recorded in the sample description.

While the degree of roundness ranged from angular to round, the borehole was assumed to have encountered bedrock if the majority of clasts were angular and not observed to be water-worn over several feet. Given that the Becker Hammer method allows a maximum clast size of 6 inches to be delivered to the surface, the percentage of any clasts (cobbles and/or boulders) exceeding that dimension could not be determined.

Grab samples of drill cuttings from below the saturated zone were logged and screened for volatile organic compounds (VOCs) using an Environmental Instruments photoionization detector (PID). PID readings were also recorded on the boring log. PID readings of the grab samples collected from this boring ranged from 0.0 to 0.6 parts per million (ppm). A composite of these samples was submitted for VOC analysis, and was used to determine the proper means of disposal for all saturated cuttings from this borehole. Saturated drill cuttings were containerized in 55-gallon drums and transported to the UID 90-day yard while awaiting analytical results.

2.3 RECORD KEEPING

While on site, Kleinfelder's geologist maintained records of all activities in a bound field log book, on Field Activity Reports, Safety Meeting Logs, Drill Rig Inspection Logs, and Equipment Calibration Logs. Copies are presented in Appendix B.

3. SUMMARY OF SUBSURFACE CONDITIONS

3.1 GEOLOGIC LOG

A Kleinfelder geologist was on site during drilling to collect samples of drill cuttings in order to maintain a continuous geologic log of the subsurface conditions that were encountered. Lithologic descriptions and geologist's observations were entered onto the geologic log. The geologic log of the cuttings that were sampled during drilling of the monitoring well D-12 borehole is included in Appendix C as Plate C-1.

The geologic log indicates that the boring was drilled in unconsolidated valley fill sediments from the surface to a depth of 346 feet bgs and in bedrock from 346 to 370 feet bgs. Most of the subsurface sediments above the bedrock can be described as poorly graded sand and gravel with varying amounts of boulders, cobbles, silt, and clay. The coarser-grained sediments (i.e., gravels) are interpreted to have been deposited in a dynamic high energy depositional environment of coalescing alluvial fans. They are interpreted to represent one or more of several types of alluvial fan deposits, including debris flow, stream channel, sheetflood, and sieve, that have been defined (Collinson, 1978) based on depositional process, location on the fan, deposit morphology, degree of sorting and bedding, etc. The coarser sediments consisted mostly of sub-angular to sub-rounded clasts of tan to gray quartzite, and gray to black limestone, and dolomites. Other rock types observed in the sediment in minor amounts included soft red to green extrusive volcanics, tan sandstones, grey granitic intrusives, and white calcedony minerals (quartz). While some angular clasts were observed, these are likely products of the mechanical breaking caused by the drilling method. Once bedrock was encountered, the cuttings became angular and of a single rock type. A graphic log was created to aid the reader in attaining a quick overview of the borehole stratigraphy and is included as part of the borehole log (Appendix C) and Well Construction Diagram (Appendix D).

Horizons of less permeable fine-grained sediments were encountered at depths of 46-55, 64-69, 88-90, 97-99, 114-122, 182-184, 261-264, 274-276, 290-293, and 310-334 feet bgs. While some of the finer-grained clay- and/or silt-rich sediment occurrences may be of lacustrine or floodplain origin, others may represent debris flows (Collinson, 1978) and/or possibly stream overbank deposits.

Cemented horizons were noted at depths of 207-208, 276-284, 313-314, and 334-343 feet bgs. Bedrock is slightly weathered, light yellow-brown sandstone.

Free water from the cyclone was first observed at 336 feet bgs during drilling. Depth to water was measured at 339.61 feet below top of casing (btoc) once the well was constructed and developed. A perched water zone was encountered around 260 feet bgs and likely accounts for

the production of free water prior to penetrating the water table. The source of the perched groundwater may be the irrigated field located immediately east of the well.

3.2 GEOPHYSICAL LOG

As a secondary interpretive tool, down-hole geophysical logging of monitoring well D-12 was completed within the polyvinyl chloride (PVC) cased well following construction. Natural gamma ray (gamma) and induction electric (induction) logs were run simultaneously by RAS on December 7, 2004 using a combination gamma ray-induction tool manufactured by Century Geophysical Corporation of Tulsa, Oklahoma. The gamma and induction logs for this well are contained in Appendix C. Data validation was attained via a repeat logging run of a selected stratigraphic interval within the well. On a separate log printout in Appendix C the borehole geology has been added, and an attempt has been made to correlate pronounced gamma and induction electric highs and lows with fine-grained, generally clay-rich units and caliche-cemented zones. The reader should refer to that multipage printout when reviewing the comments presented below concerning the description and interpretation of the geophysical logs.

The former logging technique measures the natural gamma emissions emanating from the formation surrounding the borehole. This radiation is released from nuclei of an unstable element decaying to a more stable element. Potassium 40 is the element responsible for most of the gamma radiation detected by the gamma ray probe. This element is very abundant in a number of rock-forming minerals, such as potassium feldspar, that weather to clays. Thorium- and uranium-bearing minerals also produce a gamma ray response, but in most geologic environments, including the unconsolidated valley fill deposits at the project site, the potassium-40 isotope is most abundant. Hence, as the clay content of the sediment increases the gamma ray response also increases. Conversely, the gamma response becomes progressively weaker as the quartz content of the sediment increases. A comparison of this and other monitor well boring logs with their respective gamma ray logs shows a very strong correlation between finer-grained, clay-rich units and gamma ray peaks. Slight offsets between a gamma peak and the location of the fine-grained interval are attributed to an inability to exactly define the depths of unit contacts owing to the time required for the cuttings to travel up the borehole and reach the surface. The measurement scale of the gamma-ray log is in API (American Petroleum Institute) units, accepted as the international reference standard that allows consistent comparisons to be made between a wide variety of gamma-ray counting devices.

The gamma ray response for this well is typically below ~35 API units, except for clay and silty clay units, which typically peak between 50 and 56 API units. Elevated gamma readings were obtained for virtually all of the approximately one-half dozen clay-rich units logged in this well. The strongest gamma response, a peak of approximately 100 API units located at 337 – 340 ft bgs, does not correlate with any identified clay-rich units, but rather appears to correspond to a

cemented gravel interval from about 334 to 343 ft. It is posited that the cemented gravel zone may contain some clasts of Tertiary intrusive or dike rocks containing elevated amounts of potassium-bearing minerals such as feldspar and biotite. Notably, even within an individual fine-grained unit, the gamma response was variable. For example, the gravelly fat clay zone overlying the aforementioned cemented gravel zone exhibits a pronounced decline in gamma radiation between 323 and 325 ft. The inconsistency in gamma ray response is thought to reflect a change in the gravel content of this unit, and may also be a function of clay mineralogy.

The induction log measures the conductivity from high frequency alternating currents that are induced into the geologic formation, and is best suited where the formation is characterized by low to medium (less than 50 ohm-meters) resistivity values, the geologic medium exhibits medium to high porosity, and the open borehole was advanced using mud or air as the drilling fluid. Induction logging can be performed in boreholes cased with PVC, but not with steel pipe. Although the induction device measures conductivity, by convention the conductivity readings are converted to a resistivity curve when plotted on a down-hole log via a simple inverse relationship.

Three curves are shown on the induction logs that were run by RAS. They represent the direct conductivity (millimhos/meter) readings as designated by a dashed (“cond”) curve on the plot, a conductivity (“ap-cond”) curve designated by a dotted line that has been corrected for the temperature of the induction probe, and resistivity (ohm-meters) measurements derived from a conversion of the temperature-corrected conductivity readings that are depicted as a solid (“res”) line on the induction log plot.

Resistivity and conductivity responses are highly variable, even within individual boring log units, and cover ranges from 0-80 ohm-meters and 0-120 millimhos/meter, respectively. Such variation is interpreted to reflect differences in porosity, moisture and clay content of the various sediment units identified. As might be expected, clay-rich units identified in the geologic log generally correlate with low resistivity and high conductivity readings. However, the responses are not always sufficiently higher than background to allow one to identify the interval as a fine-grained clay-rich zone on the basis of the induction log alone. The few caliche-cemented zones identified during logging show a diverse response to the induction logging. Occurrences at approximately 313 ft and 334 to 339 ft do not appear to correlate with elevated resistivity readings. Moreover, the resistivity response of the cemented gravel interval at 334–343 ft appears to be masked by that of the quartzite boulders (?) and bedrock below 343 ft bgs.

In summary, the induction electric and gamma logs appear consistent with the subsurface conditions as interpreted from the drilling response and geologic logging of the drill cuttings.

3.3 HYDROSTRATIGRAPHIC SECTION

To aid in understanding the subsurface geology and water table configuration in the vicinity of this monitoring well boring, the geologic log for this well was plotted on a straight line cross section trending largely north-south over a distance of approximately 9,000 linear feet also defined by monitoring well borings D-13 and D-16 (Plate C-4). Well D-13 was projected onto the section. The projection distance for that well is provided on the cross section. The location of this cross section (B - B') is shown on Plate C-3. Note that only cross section B - B' is provided in this well completion report, since it is the only section that is partially defined by well D-12.

Study of the cross section suggests that the predominantly fine-grained sediment units do not appear to be laterally continuous between the five C-series wells that lie on or have been projected onto Cross Section A - A'. Thus, the correlation of these units from borehole to borehole is poor. This is partially due to the substantial distances between them (up to ½ mile). However, even for boreholes that are relatively close to each other (e.g., C-41 and C-42F are approximately 800 feet apart), little correlation appears to exist between units.

The difficulty in correlating distinct fine-grained units is not surprising, given that the unconsolidated valley fill within SWMU-58 was largely deposited in a dynamic high energy depositional environment of coalescing alluvial fans. Fine-grained units deposited under such conditions are characterized by limited thickness and areal extent, and this also appears to hold true for the project area, in addition to well boring C-41. Many of the fine-grained silt- and/or clay-rich intervals pinch out over a few hundred ft due to a change in the depositional environment.

Another plausible explanation for limited areal extent is post-depositional erosion and sediment reworking. Channel erosion is strongly suspected of causing the substantial difference in the thickness of a clay-rich lacustrine or floodplain deposit encountered in two closely spaced borings at Building 600 in the Utah Industrial Depot. It almost certainly has been operative elsewhere.

There is another factor that may frustrate correlation of fine-grained units in this and other Phase II RFI groundwater monitoring wells. Most of these fine-grained units, even if they exhibit some lateral extent, were generally deposited on inclined alluvial fan surfaces sloping several degrees or more. Over a distance of just a few hundred feet a dip of even a few degrees translates into a change in elevation of up to ten feet or more. Moreover, for monitoring wells spaced a thousand feet or greater, which is not atypical for the groundwater monitoring array at TEAD, differences in the elevation of a laterally continuous unit could be on the order of several tens of feet.

As per the fine-grained units, little success has been achieved attempting to correlate caliche-cemented zones that occur primarily in the gravels. The same general comments presented above for fine-grained sediment deposits also apply to correlation of cemented zones. The ability to correlate both fine-grained sediment units and cemented zones between monitoring wells in the

project area may be contingent upon the quality of the downhole gamma and induction electric logs for those wells.

There is an elevation drop in water level of the regional unconfined aquifer on the order of about 90 to 100 feet going northeast from wells C-31 (gw elev 4469 ft), C-18 (gw elev 4468 ft), C-13 (gw elev 4463 ft), and C-10 (gw elev 4460 ft) (all of which are located along the northeast boundary of TEAD) into the off-Depot region where monitoring wells D-12 (gw elev 4367 ft), D-02 (gw elev 4374 ft), D-13 (gw elev 4367 ft), D-04 (gw elev 4372 ft), D-06 (gw elev 4372 ft), and D-16 (gw elev 4370 ft) are located. Groundwater elevation data presented here were generated either Fall 2004 or Spring 2005. An early groundwater elevation contour map incorporating initial water level data from the first ten offsite D-series monitoring wells (Parsons, 2003a; Figure 3.8) shows the steep hydraulic gradient between the four C-series wells listed above and four of the D-series monitoring wells due to the substantial difference in the potentiometric surface elevations. This pronounced drop in water level over a sizeable area could be due to a post-depositional fault or faults in the alluvium. The thick gouge-like fat clay layer from 310 to 334 feet bgs recorded on the borehole log of D-12 may be indicative of one such structure, though more data is needed to support this conjecture.

4. WELL CONSTRUCTION SUMMARY

4.1 CONSTRUCTION TECHNIQUES AND MATERIALS

The 10-inch Becker Hammer drive casing was advanced to approximately 9 feet below the water table, and the 6-inch uncased boring was advanced to approximately 33 feet below the water table. The borehole caved to 28 feet below the water table once the drill string was removed. Monitoring well D-12 was constructed inside the 346 feet of drive casing and 19 feet of open hole. Well installation occurred September 22nd through September 24th, 2004. The bottom of the well was tagged at 365 feet bgs. Two 10-foot sections of threaded, 4-inch diameter Schedule 40 PVC well screen with 0.010-inch wide slots were connected to 35 10-foot sections of 4-inch diameter Schedule 40 PVC blank casing and were lowered inside the drive casing to the bottom of the borehole. The screen extends from 345 feet to 365 feet bgs. Approximately 2.5 feet of blank casing were left standing above the ground surface.

Silica sand (16-40) was added to the annulus between the PVC and the borehole in the interval adjacent to the well screen. To help minimize the risk of bridging and to confirm that the correct volume of sand was added, the sand was poured slowly into the annulus from the surface and continuously sounded until the top of the sand interval was approximately 6 feet above the top of the screen. The sand-pack interval was isolated from upper portions of the borehole with a 5-foot thick seal of hydrated bentonite clay pellets. The remaining annulus above the pellets was grouted to approximately 5 feet bgs with 30 percent solids bentonite slurry in accordance with Utah Administrative Code (UAC) R655-4-9.4.2. A well construction diagram is provided in Appendix D.

4.2 SURFACE COMPLETION AND SURVEY COORDINATES

The surface completion was constructed on September 27th, 2004. A locking, 6-foot long, 10-inch diameter steel protective casing was placed around the uppermost part of the monitoring well casing, with approximately 3 feet above and 3 feet below ground. Concrete was used to partially fill and anchor the protective casing, fill the upper 5 feet of the borehole annulus, and build a 3-foot square by 1-foot thick pad (6 inches above ground surface) around the finished well. The concrete pad was finished to slope away from the protective casing and was embedded with a brass survey monument.

Four 4-inch diameter steel bollards were positioned around the pad to protect it from vehicular traffic. The bollards stand approximately 4 feet above the ground surface and extend about 2 feet bgs into concrete-filled post holes.

Ward Engineering Group of Salt Lake City, Utah, surveyed the well on December 10, 2004. Coordinates for the well locations are referenced to the North American Datum (NAD) 1983 Utah State Plane Central Zone and the elevation to the National Geodetic Vertical Datum (NGVD) 1929. Survey data are included in Appendix D.

5. WELL DEVELOPMENT

Groundwater monitoring well D-12 was developed using swabbing, bailing, and pumping methods on October 4, 2004. Development continued for 5 hours and 21 minutes until the turbidity of the water produced was less than five nephelometric units (NTUs). All development water was collected and contained for later disposal pending analytical results (see Section 7.3). Well development records are included in Appendix E.

5.1 SWABBING AND BAILING

Swabbing and bailing took place for 2 hours and 23 minutes. Swabbing was done with a loose fitting surge block with an oversized rubber disk, slightly smaller than the inner diameter of the screen. Periodic measurements of pH, temperature, electrical conductivity, turbidity, and comments regarding the appearance of discharge water were recorded on well development records (Appendix E). Approximately 90 gallons of water were removed from well D-12 by bailing during development.

5.2 PUMPING

After swabbing and bailing were completed, development was completed using an electric submersible pump. The pump was lowered to the bottom of the screened interval and operated intermittently at a pumping rate between 4.09 and 4.47 gallons per minute (gpm) for 2 hours and 58 minutes. During development pumping, the pump was periodically shut off and the water in the discharge piping was allowed to back-flush (surge) into the well. Pumping and periodic back-flush surging was continued until there was no noticeable increase in the discharge water turbidity. Periodic measurements of pH, temperature, electrical conductivity, turbidity, and comments regarding the appearance of discharge water were recorded on well development records. A total of 572 gallons of groundwater were removed by development pumping. The final turbidity was measured at 3.83 NTU.

6. GROUNDWATER SAMPLING

6.1 SAMPLING METHODOLOGY

Monitoring well D-12 was sampled using passive diffusion bag (PDB) sampling techniques. PDB sampling is performed without purging and involves lowering a polypropylene bag filled with distilled water to a predetermined depth. Once in place, the water within the PDB sampler is allowed to equilibrate with the surrounding groundwater for a minimum of two weeks. During this time, VOCs diffuse into the distilled water. The PDB sampler is then removed from the well and water is transferred into three pre-preserved 40 mL volatile organic analysis (VOA) vials.

Because monitoring well D-12 was installed as a sentinel well, and no detectable VOCs were expected in groundwater, only a single PDB sampler was deployed. The PDB sampler was placed in monitoring well D-12 at 351.5 feet below the top of the well casing on November 4, 2004, and retrieved and sampled on November 23, 2004. The single sample collected from D-12 was assigned sample number D-12GW001.

The groundwater was sampled for analysis of VOCs. After filling, sample containers were placed into ice-chilled coolers and delivered overnight to ASC, a State of Utah and USACE-certified analytical laboratory. Chain-of-custody forms were filled out and used to document the sampling dates, analytical parameters requested, and proper sample handling. Completed chain-of-custody forms and cooler receipt forms are included in Appendix F.

6.2 GROUNDWATER ANALYTICAL RESULTS

VOCs were analyzed by U.S. Environmental Protection Agency (EPA) Method 8260B. No analytes were detected above the reporting limit (RL) in monitoring well D-12, indicating that the eastern margin of the NEB TCE Plume (as defined by the 5 µg/L TCE isoconcentration contour) in this area lies to the west of this well. Laboratory reports for the groundwater analyses are included in Appendix F. Also included is an analytical quality control summary describing data quality issues.

7. INSTALLATION RESTORATION WASTE

7.1 DECONTAMINATION METHODS

To help minimize the chance that non-dedicated equipment could cross-contaminate groundwater or sediment at well D-12, a rigorous decontamination program was followed. A decontamination station was constructed in the temporary UID RCRA 90-day yard (located south of building 614) that could accommodate the drill rig, drill pipe, and other equipment as needed. Decontamination of equipment was conducted with approved water from TEAD production well WW-3 using a steam cleaner/high-pressure washer. Equipment wash and rinse water was contained in a sump within the decontamination station, pumped to a frac tank labeled as hazardous waste and stored in the UID 90-day yard for later disposal following characterization of the liquid waste stream.

7.2 DISPOSAL OF DRILL CUTTINGS

Drill cuttings in the unsaturated zone were collected below the cyclone in a wheelbarrow and spread evenly on the ground around the well site. Once groundwater was encountered, saturated cuttings were containerized in 55-gallon drums and transported to the UID 90-day yard. A saturated sample was collected every 5 feet and, upon completion of the borehole, these samples were composited to a single sample and submitted for laboratory analysis for VOCs. Lab results indicated the VOCs tetrachloroethylene (PCE) and benzene were detected as trace amounts below the RL. The drums of cuttings were profiled (#CH80421) and transported to Clean Harbors Aragonite Disposal Facility in Aragonite, Utah. The transportation was conducted under Uniform Hazardous Waste Manifest #P401 on November 11, 2004. Disposal letters, laboratory results, profile, and manifest are included in Appendix G.

7.3 DISPOSAL OF WASTEWATER

Water derived from the development of well D-12, including equipment rinse water generated following development, was transported from the well site to the UID temporary 90-day yard by MP Environmental Services, utilizing a 5,000 gallon capacity tanker truck, and pumped into a 21,000 gallon capacity frac tank.

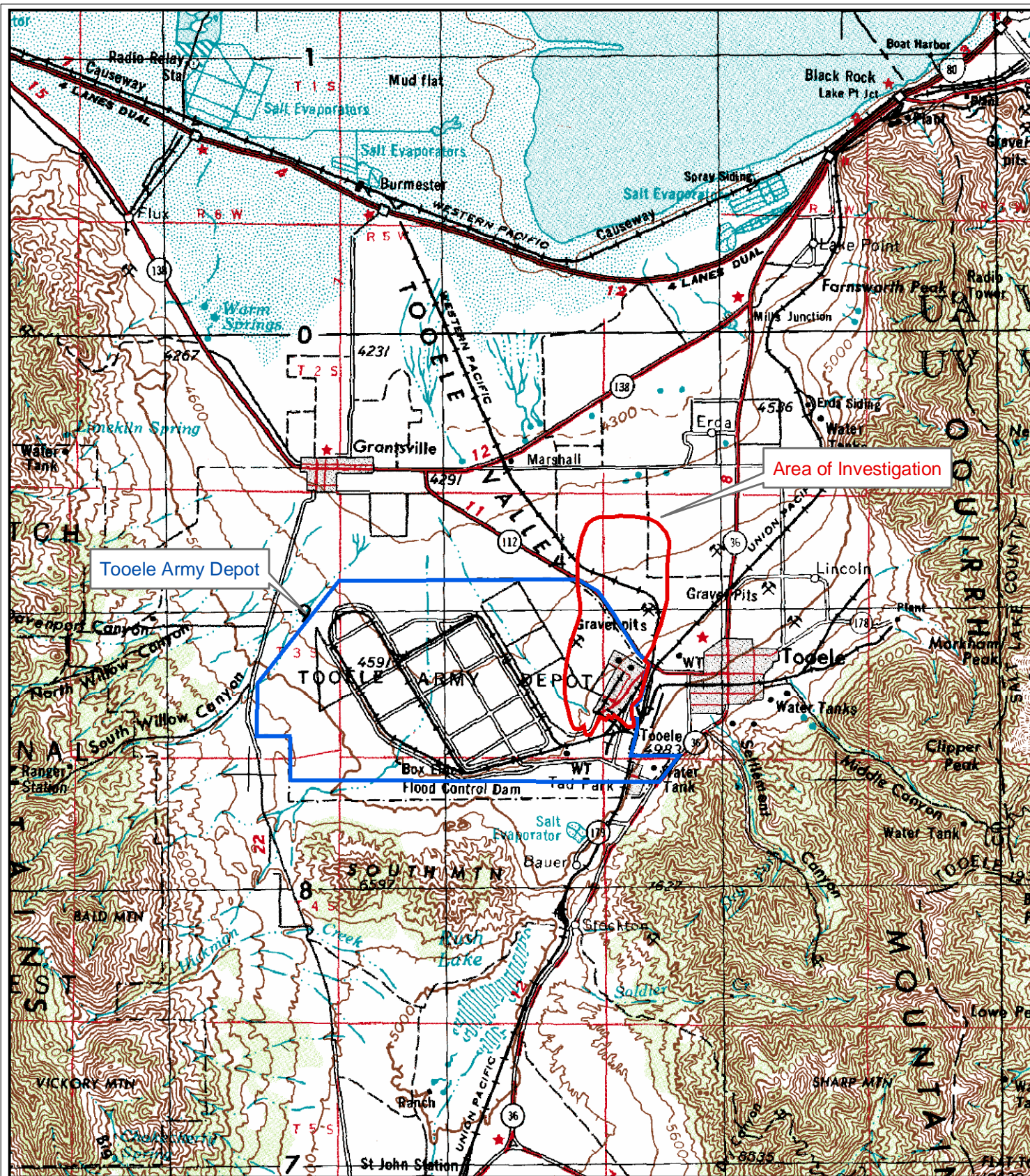
Subsequently, groundwater extracted and equipment rinse water generated during well development and decontamination activities associated with the installation of monitoring wells D-13 and D-16 were added to that bulk container water was managed as single waste stream pending analysis to determine the most suitable disposal option.

Analysis of the waste characterization sample collected from the frac tank following its closure, i.e., after water associated with the installation and development of wells D-13 and D-16 had been added, revealed the presence of a number of VOCs (0.590 µg/L benzene, 23.3 µg/L ethylbenzene, 90.8 µg/L m,p-xylenes, 45.3 µg/L o-xylene, 330 µg/L methylene chloride, 2.22 µg/L naphthalene, and 2970 µg/L toluene) that were not detected in the PDB samples of the groundwater taken from these three wells. It was eventually determined that the source of these constituents was a section of previously contaminated hose used on the MP Environmental tanker to pump purge and decontamination water from the tanker during the development of one of the aforementioned monitoring wells.

The water was designated as a F001, F002, and F005 listed hazardous waste based on the VOCs present. As a result, the water could not be processed at the TEAD groundwater treatment facility operated by Veolia Water. Moreover, because the concentrations of methylene chloride and toluene exceeded the permissible limits in wastewater for land disposal, this waste stream was profiled, manifested, and transported to the Clean Harbors Aragonite disposal facility for incineration on December 22, 2004. A copy of the disposal memo is included in Appendix H.

8. REFERENCES

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- Parsons, 2003a. Final Addendum to Phase I RCRA Facility Investigation Report for SWMU 58: Groundwater Investigation – Offsite Portion of Northeast Boundary Area. Tooele Army Depot, Utah. August.
- Parsons. 2003b. Final Phase II RCRA Facility Investigation SWMU-58 Work Plan for Tooele Army Depot, Tooele, Utah.
- Parsons. 2004. Final Phase II RCRA Facility Investigation SWMU-58 Work Plan, Sampling and Analysis Plan, Addendum 1 for Tooele Army Depot, Tooele, Utah.
- Welenco, 1996. Water and Environmental geophysical Well Logs: Volume 1—Technical Information and Data, 8th edition.



LEGEND

- Installation Boundary
- Investigation Boundary

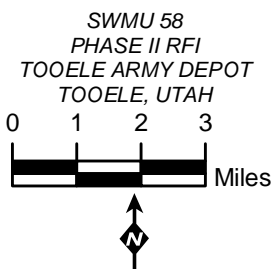
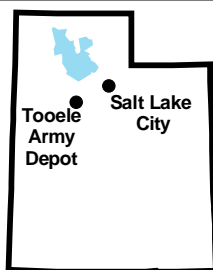


FIGURE 1.1
SITE
LOCATION
MAP

Source: USGS Tooele, Utah 1 x 2 Quadrangle, 1970

APPENDIX A

AMENDMENT NUMBER TWO

TO

RIGHT-OF-ENTRY
FOR
CONSTRUCTION

PROJECT: Tooele Army Depot, Utah

CONTRACT NO. DACW05-9-03-0018-02

OWNER: Tooele County

Right of Entry for Construction, Contract Number DACW05-9-03-0018, granting to the Government the right of ingress and egress upon the lands of the Owner located in the State of Utah, County of Tooele to construct and maintain groundwater monitoring wells. Said access was granted for the following property described as as abandoned Warner Branch of the Union Pacific Railroad Company deeded by donation quitclaim deed to Tooele County as recorded in Book 366 on Pages 742 – 746 of the Tooele County Recorder's Office records. This agreement is hereby amended in the following particulars:

1. The Owner grants to the Government the right to install the well designated as "D-12". Said well will require a fifty-foot (50') radius area, which allows for equipment access. The approximate location of this well will be between the parcels described as Assessor Parcel Numbers 2-87-8 and 2-87-12, further delineated in the attached map.
2. The final location/placement of well "D-12" will be in cooperation with the Tooele County point of contact named as Mr. Ray Johnson, Tooele County Engineer.
3. Access to well "D-12" will be along already established routes surveyed in by the Government in order to reach wells "D-6, 10, and 13;" otherwise described as the abandoned railroad alignment, Tooele County right of way.

Said right of entry is amended in the above particulars only, and all other conditions thereof shall remain binding and in full force and effect. This amendment shall henceforth be considered a part of said right of entry as if fully and completely written therein.

WITNESS MY HAND this 20th day of April, 2004.

County of Tooele
47 South Main Street
Tooele, Utah 84074

(Signature)

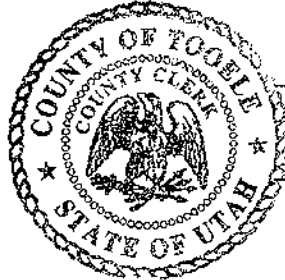
(Print Name)

(Title)

D-12/13-1

GOVERNMENT ENTITY ACKNOWLEDGEMENT

I, Dennis D. Ewing, certify that I am the Clerk of the government entity named herein, and that Dennis L. Ruchell who signed this instrument on behalf of the governmental agency, was then Chairman of the governmental agency; and that this instrument was duly signed for and on behalf of said governmental agency by authority of its governing body and is within the scope of its powers.



(Signature)

(Date)

4/20/04

CERTIFICATE OF ACCEPTANCE

This is to certify that the undersigned officer on behalf of the United States of America hereby accepts the rights granted by the foregoing right of entry.

ACCEPTED

UNITED STATES OF AMERICA

(Signature)

MARVIN D. FISHER
Chief, Real Estate Division
U.S. Army Engineer District, Sacramento

(Date)

5/4/04

D12/13-2

Page 2 of 2

DIVISION OF WATER RIGHTS
REQUEST FOR NON-PRODUCTION WELL CONSTRUCTION
(for wells deeper than 30 feet)

Well Type (check one): Provisional () Monitor (X) Cathodic Protection () Heat Exchange ()

Applicants Name: TOOELE ARMY DEPOT

Mailing Address: SIOTE-EO-EO (BLDG 8)

TOOELE ARMY DEPOT TOOELE, UTAH 84074

Contact Person: MR. LARRY MCFARLAND Phone: (435) 833-3504

Proposed Start Date: 08/02/04 Anticipated Completion Date: 12/31/04

Well Drillers License No: 215 Proposed No. of Wells: 10

PROPOSED LOCATION OF WELLS:

County: TOOELE

NO./SQ. DISTANCE (feet)	EAST/WEST DISTANCE (feet)	SECTION CORNER	SECTION	TOWNSHIP	RANGE	BASE	DIAMETER (inches)	DEPTH (feet)
N1000	W1300	W4	15	2S	1W	SL	2	100

Use back of form or additional paper if more room is needed

EXPLANATORY: REFER TO ACCOMPANYING TABLE FOR INFORMATION ON PROPOSED
WELLS.

Signature of Applicant

Date

FOR OFFICE USE ONLY

Date of Request: _____ Approval Date: _____

Approved by: _____ Provisional/Monitor Well No. _____

Water Right Number (if available): _____

Request for Non-Production Well

LOCATION DATA FOR PROPOSED GROUNDWATER MONITORING WELLS
UTAH INDUSTRIAL DEPOT, TOOELE, UTAH

Well Identifier	-proposed well location-		-referenced section corner-		-well location relative to section corner-		Section Corner	Township	Range	Base	Diameter (inches)	Depth (feet)
	State Plane (northing)	State Plane (easting)	State Plane (northing)	State Plane (easting)	North/South Distance (feet)	East/West Distance (feet)						
C-41	7364702	1407022	7365112	1409429	South 413	West 2406	NE	30 3S	4W	SL	4	390
C-42	7365715	1406276	7365067	1404092	North 649	East 2187	SW	19 3S	4W	SL	4	355
C-43	7367012	1403984	7365067	1404092	North 1646	East 1883	SW	19 3S	4W	SL	4	320
C-44	7367575	1404058	7365067	1404092	North 2507	West 34	SE	24 3S	5W	SL	4	290
C-45	7370246	1405151	7370371	1404071	South 125	East 1076	NW	19 3S	4W	SL	4	310
C-46	7370246	1405151	7370371	1404071	South 125	East 1076	NW	19 3S	4W	SL	4	550
D-12	7367916	1410001	7370415	1409392	South 1731	East 433	NE	19 3S	4W	SL	4	400
D-13	7371871	1410626	7370415	1408392	North 1456	East 1355	SW	17 3S	4W	SL	4	355
D-14	7374293	1403758	7375578	1404047	South 617	West 259	NE	13 3S	5W	SL	4	240
D-16	7377309	1409136	7375667	1408370	North 1644	West 234	SE	7 3S	4W	SL	4	250



OLENE S. WALKER
Governor
GAYLE F. MCKEACHNIE
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Water Rights

ROBERT L. MORGAN
Executive Director

JERRY D. OLDS
State Engineer/Division Director

TOOELE ARMY DEPOT
SIOTE-EO-EO (BLDG 8)
TOOELE ARMY DEPOT
TOOELE, UT 84074

July 28, 2004

Dear Applicant:

RE: MONITOR WELL#: 0415004M00

Reference is made to your request to drill 10 MONITOR WELL(S). The anticipated drilling depths will exceed the minimum regulated and reporting depth of 30 feet, thereby requiring permission from the Division of Water Rights to proceed with this project.

The specifications outlined in your well project request dated July 28, 2004, meet the State Engineer's requirements and permission is **HEREBY GRANTED**. Therefore, this letter is your authorization to proceed with the construction of the well(s) in accordance with those specifications and with respect to the following provisions:

- 1) Small diameter casing is to be used in the construction of the well(s) and no more water is to be diverted than is necessary to determine the quality of the ground water by obtaining representative samples as required by the project.
- 2) The well(s) must be drilled by a currently licensed Utah driller and must be drilled in a manner consistent with the recommended construction standards cited in the Utah State Administrative Rules for Well Drillers.
- 3) The enclosed Driller (START) Card form must be given to the licensed driller for his submittal prior to commencing well construction. The other enclosed form is the 'Applicant Card.' It is **YOUR RESPONSIBILITY** to sign and return this Applicant Card form to our office upon well completion.
- 4) If complete information is not available in the initial application, it is the **APPLICANT'S RESPONSIBILITY** to provide, upon completion, descriptive locations of the wells referenced by course and distance from established section corners, e.g. North 565 feet and West 1096 feet from the SE corner of Section 36, T2S, R5W, SLB&M.
- 5) At such time as the well(s) are no longer utilized to monitor ground water and the intent of the project is terminated, the well(s) must be temporarily or permanently abandoned in a manner consistent with the Administrative Rules.

NOTE: Please be aware that your permission to proceed with the drilling under this authorization expires January 28, 2005.

Sincerely,

John Mann, P.E.

John Mann, P.E.
Regional Engineer
1394 West North Temple, Suite 220, PO Box 146000, Salt Lake City, UT 84114-0300
telephone (801) 538-7240 • fax (801) 538-7467 • www.waterrights.utah.gov

Utah!
Where Ideas Connect

APPLICANT CARD for Monitor WELL#: 0415004M00

IMPORTANT: THIS CARD MUST BE COMPLETED, SIGNED AND RETURNED BY THE WELL
OWNER/APPLICANT AS SOON AS THE WELL IS DRILLED BY A LICENSED UTAH WATER
WELL DRILLER.

OWNER/APPLICANT NAME: TOOELE ARMY DEPOT

MAILING ADDRESS: SIOTE-EO-EO (BLDG 8), TOOELE ARMY DEPOT, TOOELE, UT 84074

PHONE NUMBER: 435-833-3504

WELL LOCATION: You are authorized to drill 10 Monitor Wells. SEE BELOW.

WELL UTM COORDINATES:

WELL ACTIVITY: NEW ☒ REPAIR () REPLACE () ABANDON ()
CLEAN () DEEPEN ()

WELL COMPLETION DATE:

NAME OF DRILLING COMPANY/LICENSEE:

Owner/Applicant Signature

Date

***COMPLETE. SIGN AND RETURN THIS PORTION UPON FINAL WELL COMPLETION -

DO NOT GIVE THIS CARD TO LICENSED WELL DRILLER - YOU MUST RETURN IT.

STATE OF UTAH DIVISION OF WATER RIGHTS Phone No. 801-538-7416

Fax No. 801-538-7467

COMMENTS:

MONITOR WELL LOCATIONS:

- (1) N 1644 W 234 from the SE corner, S07 T 3S R 4W SLBM
- (2) N 1456 E 1355 from the SW corner, S17 T 3S R 4W SLBM
- (3) N 649 E 2187 from the SW corner, S19 T 3S R 4W SLBM
- (4) N 1946 E 1863 from the SW corner, S19 T 3S R 4W SLBM
- (5) S 173 E 433 from the NE corner, S19 T 3S R 4W SLBM
- (6) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (7) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (8) S 413 W 2406 from the NE corner, S30 T 3S R 4W SLBM
- (9) S 817 W 256 from the NE corner, S13 T 3S R 5W SLBM
- (10) N 2507 W 34 from the SE corner, S24 T 3S R 5W SLBM

AUG

DRILLER (START) CARD for Monitor WELL#: 0415004M00

IMPORTANT: THIS CARD MUST BE RECEIVED BY THE DIVISION OF WATER RIGHTS PRIOR TO THE BEGINNING OF WELL CONSTRUCTION -- REQUIRED ONLY FOR WELLS DEEPER THAN 30 FT.

OWNER/APPLICANT NAME: TOOELE ARMY DEPOT

MAILING ADDRESS: SIOTE-EO-EO (BLDG 8), TOOELE ARMY DEPOT, TOOELE, UT 84074

PHONE NUMBER: 435-833-3504

WELL LOCATION: You are authorized to drill 10 Monitor Wells. SEE BELOW.

WELL UTM COORDINATES:

WELL ACTIVITY: NEW ☒ REPAIR () REPLACE () ABANDON ()
CLEAN () DEEPEN ()

PROPOSED START DATE: 9-1-04

PROJECTED COMPLETION DATE: 8-1-05

LICENSE #: 626 LICENSEE/COMPANY: Layne Christensen Co.
58 8-29-04

Licensee Signature

Date

NOTICE TO APPLICANT: THIS CARD IS TO BE GIVEN TO A LICENSED UTAH WATER WELL DRILLER FOR HIS SUBMITTAL PRIOR TO WELL CONSTRUCTION.

STATE OF UTAH DIVISION OF WATER RIGHTS Phone No. 801-538-7416
Fax No. 801-538-7467

MONITOR WELL LOCATIONS:

- (1) N 1644 W 234 from the SE corner, S07 T 3S R 4W SLBM
- (2) N 1456 E 1355 from the SW corner, S17 T 3S R 4W SLBM
- (3) N 649 E 2187 from the SW corner, S19 T 3S R 4W SLBM
- (4) N 1946 E 1863 from the SW corner, S19 T 3S R 4W SLBM
- (5) S 1731 E 433 from the NE corner, S19 T 3S R 4W SLBM
- (6) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (7) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (8) S 413 W 2406 from the NE corner, S30 T 3S R 4W SLBM
- (9) S 817 W 256 from the NE corner, S13 T 3S R 5W SLBM
- (10) N 2507 W 34 from the SE corner, S24 T 3S R 5W SLBM

Construction Information

DEPTH (feet)		CASING			DEPTH (feet)		SCREEN <input type="checkbox"/> PERFORATIONS <input type="checkbox"/> OPEN BOTTOM		
FROM	TO	CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	FROM	TO	SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
0	313	4" Sch. 40 PVC	40	4	343	363	.010	4	Factory SI

Well Head Configuration: Above GradeAccess Pon Provided? ☒ Yes ☐ NoCasing Joint Type: Flush ThreadPerforator Used: N/AWas a Surface Seal Installed? ☒ Yes ☐ NoDepth of Surface Seal: 3.39 feetDrive Shoe? ☒ Yes ☐ NoSurface Seal Material Placement Method: Tremie Bentonite Pellets and Bentonite Grout

DEPTH (feet)		SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION		
FROM	TO	SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	334	Bentonite Grout	102 Bags	50 lbs each
334	339	Bentonite Pellets	6 Buckets	50 lbs each
339	363	16-40 Silica Sand	16 Bags	50 lbs each

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One		DRAWDOWN (ft)	TIME PUMPED (hrs & min)
			GPM	CPS		
	N/A					

Pump (Permanent)

Pump Description: N/A

Horsepower: _____ Pump Intake Depth: _____ feet

Approximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☐ Yes ☐ No

Comments

Description of construction activity, additional materials used, problems encountered, extraordinary Circumstances, abandonment procedures. Use additional well data form for more space.

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name LAYNE CHRISTENSEN COMPANYLicense No. 626

Signature _____

Date February 4, 2005

APPENDIX B

Wednesday, September 1, 2004

Weather: clear 75° ^{no} wind

8:00 I (Matt Ivers) arrive at TEAD to prep for kickoff meeting. Jeff Bigelow (Parsons) oversight.

8:30 Richard Jurik (Parsons PM) arrives. They have rented part of Building 614 for an onsite office. We discuss the work plan and site health and safety plan.

10:00 We begin the project kickoff meeting. Attending parties are

Richard Jurik	} Parsons
Jeff Bigelow	
Jill Thomas	
Kurt Albury	
Matt Ivers	Kleinfelder
Carl Cole	USACE
Larry McFarlane	TEAD
Don Raynolds	"
Jessie Sablin	VID
Don Yea	"
Tom Kearns	} Layne
Mike Wynn	
Nate Salazar	

Richard Jurik conducts the meeting and goes over the workplan and the Site Health and Safety Plan

10:20 Jill Thomas discusses Parsons Health & Safety concerns including new policy of daily rig inspections including checking the emergency cutoff mechanism, prohibiting food and drink onsite and carrying out offsite on rig and clean haz waste drums.

10:30 Jeff Bigelow discusses utility clearances. Jessie Sablin is concerned exclusion zone could impede traffic at some locations and suggests revisiting them. Also needs a paragraph on the project for the tenant newsletter. Larry McFarlane will provide this. Carl Cole discusses logging techniques.

10:40 Jill discusses the 90-Day yard and phone # list and directions to the hospital for crews on

4-22-68, 10:00 AM, 10:00 AM, 10:00 AM

Directions to site for fire dep or ambulance: 01
 Jessie says to give them B Avenue and
 Jade Street as an address. Larry says use
 northeast of the old city landfill.

13:30 Crew returns to SLC to prepare rig for
mob to site. Some minor repairs are
ongoing. I head to SLC for another project
until I hear otherwise.

~~Walt Henry~~

Thursday 9/2/04

weather: overcast ~65° ^{no} wind

- 8:00 I arrive at site. Rig is outside mast is up. Crew is ready. We call TEAD public works and arrange to meet Gary Polaski at Water Well 3 at 8:30 to fill tanks. We don't need water to drill but Richard thinks it necessary for fire protection.
- 8:30 At well 3 Jeff Hammann (U.S. Filter now Veolia) is outside waiting for water also. He fills first
- 9:00 We are full. We have Health and Safety tailgate while waiting for water. Several topics covered. See sign up sheet. Borehole name is D-12.
- 9:30 Back at rig. Begin Drilling. Richard Jurik outside
- 9:40 Jeff Bigelow outside. I explain how I believe Carl Cole wants logging to occur. I have called him and he will be outside shortly.
- 10:30 @ 35' bgs Carl arrives. We shut down rig briefly to discuss logging soils. It is agreed we will collect sample every 5' in a bucket lay piles on plastic, archive a quart baggie from each to retain moisture content. Crew (Wate Salazar) will collect buckets. Richard and Jeff will log details according to ASTM method so data is easily transferred to SynerGIS database. I will watch cuttings as they are produced from the cyclone because this gives the most accurate interpretation of soil horizons as they are encountered. When Richard or Jeff are not outside I will log ASTM detail from bags after drilling or as rate of penetration slows.
- 11:02 Resume drilling. Carl returns with USACE boring log paper to use
- 11:47 Larry McFarlane and Dean Reynolds outside
- 12:05 @ 90' a rock is logged in annulus of drill pipe
- 12:35 Resume drilling
- 12:43 @ 100' Crew shuts down to go construct D-con pad. Jeff take them over. Richard & I continue logging.
- 13:15 Jeff returns. He and I and Richard go to look

9/2/04

at site of next hole - D13.

14:05 We return to site. Richard will go observe construction of Decon pad. I will continue logging.

16:10 I drive to Decon pad. Crew is nearing completion.

16:30 I drive to Tooele to get a room and work at a desk. Richard is off over the next week. Jeff is off tomorrow. I will meet crew at 7:00 am.

~~W. J. Lant 9/2/04~~

Friday 9/3/04

weather: rain (450°) ^{no} wind

- 7:20 I arrive at site. Tom & Nate onsite. Carl Cole onsite. Carl borrows my ASTM to make copies (logging method). Heads to his office.
- 7:30 Crew & I do H&S tailgate Topic: Traffic on Rogers Road and Hands & Finger safety.
- 7:50 Nate has harness on to fuel head but lightning sends us into trucks.
- 8:05 Nate fuels head. Mike arrives with boom truck & spill over trough for when we reach saturated zone.
- 8:10 Crew fires up rig for warmup. I label bags & prepare log.
- 8:15 Begin drilling @ 100 ft.
- 8:32 @ 113' we are not returning cuttings though we are advancing casing. Crew tries to dig plug out of head and inner tube. In past drilling we have used a second compressor at about this depth because cuttings aren't lifting properly. I will ask Tom about this once he is unplugged.
- 9:02 Roos unplugged but plug again shortly. I ask Tom about 2nd compressor. He calls shop. They agree this is the problem. Tom tags about 5 feet of cuttings inside rod at hole bottom. Layne is sending out aux compressor pronto. I call Carl to let him know. Richard Junk calls for update. I fill him in.
- 10:45 Compressor has not arrived but crew has been told to keep drilling until it does. I try to call Layne shop but get no answer. I call main office & get Jeremy to give me Christian. We agree to stop till we have more air. Stop @ 120'.
- 12:30 Carl Cole onsite. We discuss having logging. We note SOP calls for Parsons log not USACE log so we will resolve this Monday with Mary Ellen McKenzie (USACE) and Ed Stays (Parsons).
- 13:00 Crew arrives with Sulair 900 kh compressor. Carl leaves site. I continue logging detail by ASTM D-2488 standard.
- 13:20 @ 120 We begin drilling.

9/3/04:

15:00 bolt on head ? fuel line needs tightening at 192'

15:20 Drilling again

15:40 @ 204. Fuel line cracks at top end. Crew repairs

15:57 Drilling again

16:12 210'. Done for today. Crew fuels rig. Tom

and I go over dailies for the week

16:30 Carl Cole calls for update

16:40 I go back to building G14 to turn in

and finish paper work

17:35 I leave site for SLC. Monday is Labor Day

so we will return Tuesday at 7:00 am

W. J. Miller
9/3/04

Tuesday Sept 7, 2004

weather: partly cloudy cool, wind mph 38

- 07:00 I arrive at D-12
- 07:10 Crew (Tom and Nate) arrive. Carl Cole arrives also
- 07:15 Mike arrives with drum truck
- 07:20 We have H's S tailgate Topic: PPE in the saturated zone
pinch points moving drums.
- 07:35 Carl asks about Rig Inspection Checklist. I have a
form. Tom has laynes form. We look at both I will use
mine. We inspect fire extinguishers. Rig's Steam
cleaner are good. Drillers truck are needs charging
I note this on form & tell Tom. We check other
Items. I will check dead man once rig is warm
- 7:45 Begin Drilling. Carl leaves site. I erect exclusion
zone and begin logging soil (@ 210 ft bgs)
- 8:45 @ 230' bgs. Jeff Bigelow onsite
- 9:35 Carl cole back onsite. I have gotten most recent
water levels from Jeff Hammann () and
Carl has brought the ground water model report
so we are able to discuss likely water level
target
- 10:45 @ 250 ft we are out of casing. Tom has asked
layne to deliver by 10:00 but they are late
- 11:10 While waiting crew is servicing rigs and
discovers a crack in the radiator overflow
(I thought I had smelled glycol) They disassemble
radiator and Tom heads to shop. I go to
Building 614 to do logs and forms.
- 13:10 Tom calls to let me know he will repair
radiator and return and install it but
thinks it unlikely he will drill more today
I call Carl & let him know. He is bringing an
excavation permit to me here I will do other
work here in case things go well and drilling
can commence today.
- 14:10 Carl cole visits Building 614
- 14:30 Carl leaves
- 15:30 I go to D-12 to check progress

8
9/7/04

16:10 Tom has returned with radiator and
is beginning installation. I head back to
building 614 then to SLC

~~Walt / 9/7/04~~

Wednesday Sept 8, 2004

weather clear (450°)

WIND from SE ~ 10 mph

- 7:00 I arrive at site. Crew is just arriving
Till Thomas is onsite
- 7:10 We have H&S Topic Cyclohex hazards
We do rig inspection. Fire extinguisher is
recharged since yesterday. We show Till
the emergency shutoff for the rig
- 7:30 Begin drilling @ 250'
- 8:45 Jeff Bigelow onsite. @ 276' we hit limestone boulders
- 9:02 Must shut down - the hammer head is too hot
- 9:14 Drilling again
- 10:38 The metal sleeve to which the discharge hose
attaches to the hammer head has broken off.
We are @ 277 1/2' w cemented gravels and moving
very slowly. I am driving back to Park City to
do some water sampling. Crew will call when
rig is repaired and can drill again.
- 14:10 Tom Kern calls. He has part repaired and is
heading to TEAD
- 15:00 I arrive at D-12. Crew begins drilling
- 16:10 Carl Cole onsite
- 16:30 Head & Rig too hot. We quit for day at 279' bgs.
- still drilling cemented gravel - mostly limestone - very hard
- 16:48 All hands leave site

~~W. H. [unclear] 9/8/04~~

Thurs Sept 9, 2004

weather clear (40° - 75°)

- 7:03 I arrive at site am: no wind pm: 15 mph to S
- 7:05 Crew arrives. We have H&S tailgate
Topic: Issues raised by Jill Thomas at her inspection yesterday (see form for detail)
- 7:20 Crew fills fluids & warms rig. I do paper work and erect an exclusion boundary to the south so crew can eat and drink somewhere.
- 7:35 Begin pounding @ 279'
- 8:35 Carl Cole onsite. We discuss option (i.e. changing bit or drill). Crew does not have a spare bit onsite. We have made some progress 1/4" since 7:35. Must remain patient.
- 8:50 Head is hot. Must shut down to cool. Carl leaves site.
- 9:02 Drilling again
- 10:15 Head hot @ 280'
- 10:45 Begin Drilling
- 11:35 Fuel line broken at 280' 8" -
- 12:10 Begin Drilling again
- 12:35 Head Hot
- 12:44 Begin Again at 282.5'
- 12:56 @ 283.7' cement ends - speed increases dramatically
Jeff Bigelow onsite
- 13:20 290' Slight moisture on sand around cobbles. Will watch closely for water
- 15:00 @ 310 we enter clay layer - no water
- 16:05 @ 321 still in gravelly clay Carl Cole onsite - cuttings of clay have many angular fragments and possible slickensides. Structure in clay is very convoluted. Possible fault gouge or turbidite current deposit
Carl is going back to office for some w.c. info
- 16:30 Injector on rig is shooting small flame. We shut down for repairs.
- 16:40 I leave site. Crew working on rig
Carl calls with these w.c. elevations D-2 4374'
C-18 4465.12, C-13 4460.42

W. L. / J. L. 9/9/04

Friday Sep 10, 2004

weather clear (45°-

am: wind to S (5mph) pm:

- 6:45 I arrive at Burling 614 to get PID & chip tray
- 7:00 Jeff Bigelow arrives. I head to D-12
- 7:15 Crew is onsite. We do vehicle inspections (Jeff does checklist) and have H/S tailgate. Topic: Hazards in the saturated zone
- 7:35 I go to calibrate PID but it needs charging. Jeff runs it to 614. Crew is working on injectors on hammer head and doing gasoline run to Toole
- 8:00 I call Christian Davis (Layne) and discuss well material (600 slotcreens, 16-40 sand, schedule 40 PVC as all specified in the SOP) He is also sending out 100 ft more pipe. We have only 24' left
- 9:00 Begin drilling at 323 ft. I checked water level - bone dry
- 10:17 330 ft. Carl Cole calls for an update & leaves message
- 11:35 @ 336 ft Carl calls. I tell him the story - Perhaps we are drilling down dip on a fault gauge shear zone? Barry Roben arrives with more pipe
- 13:30 @ 342 Jeff Bigelow oversight with boring logs to fill in Driller's report
- 15:10 Crew has been pounding on a quartzite since 341' @ 14:30. They shut down to cobt head, but while pulling back the notice how tight the formation has become around the pull string. They pull back over 30 feet before it is a bit looser. This is just above the clay layers upper contact. It must be swelling in the borehole.
- 16:05 I take a water level from the open hole. W.L. = 340.0 ft bgs. I sound bottom at 344.2 ft bgs. I had felt we may be in saturated zone but formation was too tight to create enough water to make it to surface in the heated high velocity airstreams. We decide to leave things as they are to check if water level rises significantly over the weekend. The formation has become so hard to penetrate

9/10/04 (cont)

that either a new bit or a change of drilling systems has become necessary so we will hope water comes up enough to set well in the existing hole. lower head on casing to secure

16:20 As I leave site I phone Carl Cole to pass on this info. We will take a new W.C. on Monday morning to determine how to proceed.

Wally

Monday 9/13/04

weather clear (40°)-(75°)

wind 5-10 mph to NW

- 7:00 I arrive at site. Crew calls - they will be 1/2 hr late
- 7:35 Crew arrives. Begins fueling rig. We have H₂S Topic back up.
- 7:45 Jeff Bigelow outside - He labels drums
- 8:00 Carl cole oversight. Crew fires up rig and lifts hammer off of pipe so we can take W.L. Water sampler at 336.4 ft bgs. Bottom of hole is 344.2. We have 7.8 ft of water. Just 3.6 additional feet since Friday night at 16:00. We will go back down hole with 30' of casing removed
- 8:50 Begin re-drilling the last 30 ft of hole in hopes of reaming out some of the clay & cement. We are now drumming cuttings as we now believe we are in saturated zone (?) I calibrate PIP at 102.6 ppm on 100 ppm ^{gas}
- 9:20 Back on bottom hammering. Cuttings lifting from 388'
- 11:50 Crew shuts down to eat & let heads cool. We have drilled only 6 inches since 9:20 (2.5 hours). Some cuttings collected indicate fractured granite with well healed fractures with authogenic calcite. (Seems like bedrock). We have generated about 1/3 55 gallon drum of cuttings and water.
- 12:40 Begin drilling again. Jeff is going back to Parsons office as per Richard Turk who is back from vacation. He leaves me flag waste labels and info and cooler & ice for waste characterization composite sample. SOP calls for 1 sample per 5 ft in saturated zone composited one hole reaches total depth. He also leaves lock keys for drum.
- 15:10 Crew shuts down rig. We have drilled an additional 8" since 12:40 (2.5 hrs) Tom calls back to Layne. Tim Stein (Layne) asks that I call him. Tim says no more hammering. It is hard on equipment. We should ODEX this hole when a rig is available and move to a new hole with the hammer

9/13/04 (cont)

They will discuss the issue and fill me
w later.

15:30 Carl Cole onsite. We look at cuttings and
take a water level after crew pulls
30 feet of casing to simulate same condition
as earlier water level measurements.

WL = 337.2 We monitor rise. First inch
of recovery w ~3 min. Second inch of recovery
w ~2 min. So we know well is recharging
though slowly. I call Richard Junk and
explain the situation. He believes I can
leave site & instruct rollers to pull casing out
of hole to inspect bit conditions.

16:05 Crew is having to hammer & stroke casing
to get it out - very tight. Tom will
phone me at the end of shift with
progress report.

Walt (all) 9/19/04

Tuesday 9/14/04

weather - clear (40°-70°)

am: wind 5-10 mph to the S

- 7:00 I call Tom on my way to depot. He says they are able to get only 60 feet of drill pipe out of hole. It is requiring hammering and stroking because it is too tight.
- 7:35 I arrive at D-12. We have H&S tailgate. Topic Vehicle movement and safety.
- 7:50 I do rig inspection and head to building 614
- 8:00 Jill Thomas arrived while I was gone. She suggests moving exclusion zone in and driller's vehicle out so they can eat and drink in vehicle. She also wants out house moved out of exclusion zone. I call "Outback Shack" to move Ron Breivik 0-913-4926 cell 274-0074. She is also wanting a separate vehicle inspection checklist for each vehicle and to do some audio decible monitoring to see if a second set of headphones is necessary in addition to earplugs. She also wants the drums to be replaced with drums without bumps.
- 9:30 I go back to 614 to make copies
- 10:05 Back at site. Crew has pulled all but 60 ft of casing. I have them wash cuttings from cattle tank into drum and put drum on a pallet and steam clean outside. Jill back onsite.
- 11:10 Last section of casing out of hole. Bit is dull. Crew has another bit on the way. They go to get lunch.
- 11:50 I take a water level at 263.5
- 11:55 I check again - 263.5
Crew is here to pump out toilet and move it
- 12:03 I go to get lunch. Jill Thomas will stay onsite to secure open borehole
- 12:40 Back at site. Layne guy has delivered new bit. I give her and Jill today's H&S topic

9/14/04 (cont)

- 13:50 I again take a water level - 263.5 ft bgs
I call Richard and Carl with this info
Is it peaches layer, confines layer or regional
water table? We will lower new bit and
casing downhole to evacuate and check
recovery. Carl will be onsite with group
around 2:30 and would like a quick
sketch to show visitors. I get to drawing
- 14:30 Drawing complete. Crew is having to hammer in
much of casing. They have 100 ft down hole.
- 14:50 Carl Cole onsite with Mary Ellen McKeon,
April Fontaine, Larry McFarland, and Helge
Gebert (UDSHW) are onsite. We discuss
the lithology and hydrology of D-12. Helge
inspects down hole labeling.
- 15:35 Visitors offsite crew is down to 140 ft
- 16:00 Jill Thomas offsite
- 16:20 Carl back to retrieve boring logs and
samples drawing to fax to Richard Jovic
- 16:40 Crew is down to 200 ft. We quit here
we sound water at 258.3 ft bgs. Hole
is cased to 263.0 ft.
- 17:05 All hands offsite

~~Walt~~

Wednesday 9/15/04

Weather clear (35°-70°)

wind South to NW

- 6:30 I arrive at building 614 for ice & copies
- 7:05 I arrive at D-12. Richard Turk calls
- 7:35 Mike Winmill arrives with well materials truck
Tom calls and says they are running late as they are loading pipe truck for the Swamp
- 7:50 Tom arrives. They warm rig and fill fluids while I do rig inspection. We will do H₂S tailgate once rate arrives with pipe truck.
- 8:20 We lift head off pipe and take a water level. 258.03 ft. Crew lowers remaining pipe down hole. This fillbarrel from ^{Monday} yesterday ~~partial~~ PARSNZ0425701
- 9:40 260 ft w. hole. Crew sets up cattle tank & drum to collect cuttings
- 10:00 Hammer won't start. I calibrate PID while crew tries to effect repairs. PID reads 101.6 on 100.0 ppm isobutylene
- 10:50 Crew can't get hammer going. Tom calls shop. We have H₂S tailgate while waiting. Topic: Drum lifting
- 11:00 Hammer running @ 263' making cuttings
- 11:21 270'
- 11:29 280 1st drum today full PARSNZ0425901
- 11:43 290
- 11:58 295 2nd " " " " 02
- 12:13 300
- 12:34 310 3rd " " " " 03
- 13:05 320 4th " " " " 04
- 13:29 330 5th " " " " 05
- 14:55 340 6th " " " " 06
- 15:10 345 7th " " partially full " 07
- We lock and label all drums. The Swamp ODEX drill has arrived. Carl Cole also on site. Crew moves Becker Hammer off hole.
- 15:30 Carl Cole leaves site.

~~W. Turk~~ 9/15/04

9/15/04 (cont)

- 16:10 Crew is moving the Schramm over hole. We are using this ODEX drill because it is more likely able to penetrate the boulder of quartzite or bedrock layer at 346 ft b.g.s. While it appears we are deep enough into the saturated zone to set a well, the information as to the depth of the bedrock is derived by USACE. We will drill 10-15 feet and if all cuttings appear to be angular fragments of the same rock type we will assume this to be bedrock. Because the hole made so little water while reentering the inside of the drill casing is coated in sticky mud and we have been unable to get the water level meter down the hole so no information has been available since reentering. Because the ODEX system is a down hole hammer at the end of casing that fits tight inside of Becker casing, we will get no water levels until it is removed and the 10" casing is pulled off bottom some distance.
- 16:30 I leave site. Crew will secure open hole with steel plate

~~U. G. Miller 9/15/04~~

Thursday 9/16/04

weather clear (40-75°)

air: no wind

- 07:03 I arrive at site. Schramm rig is over hole. Bobby Delman (layne) will be filling in for Mike Wismitt today so I go over the SSHSP with him and have him sign the plan acceptance form.
- 07:40 This Schramm is new to site D-12 so I do the pailer rig inspection on it. Emergency shutoff switch is operational.
- 08:00 We have tailgate H&S Topic: Schramm hazards. Carl Cole onsite.
- 08:10 Jeff Bigelow onsite with IRW manifests and instructions for drum removal expected to occur later today (~4:00 pm).
- 8:20 Crew has to reposition rig to get hammer down hole. Carl leaves site to get government truck & handle.
- 9:05 Begin lowering hammer and rods down hole 20 ft sections of rods. The hammer O.D. is $5\frac{3}{4}$ ". The rod O.D. is $4\frac{1}{2}$ ". The ID of the inner wall of the Becker casing is 6". The O.D. of the Becker casing is 9 inches.
- 9:15 Carl is back oversight. Richard Jurvik calls to discuss how deep we plan to drill to determine if hole is in bedrock.
- 10:20 Rods on bottom. Nale will ~~move~~ partially full drum #7 back into cattle ~~stake~~ ~~stake~~.
- 10:25 Begin drilling @ 346.
- 10:50 356' - all cuttings were angular clasts of sandstone with weathered surfaces showing iron oxide and some manganese. Carl is satisfied we are in bedrock.
- 11:10 Crew breaks for lunch. I call Richard with update. Carl makes some calls. I cover & bolt drum PARSNZ0425907.
- 11:40 Carl has instructions we intend to pull ODEX system out of hole then back fill bedrock zone with sand and then make a bentonite seal in the clay zone that goes from 310 to 346 feet. Crew has 7 buckets.

9/16/04 (cont)

of time released bentonite pellets onsite
This will make about 10 feet of seal in
a 9" hole

11:45 Crew begins pulling ODEX out. Carl goes for lunch

1338 ODEX out of hole. We try to take W.L.
but ~~the~~ sounder sticks to mud on sidewall
again. Crew suggests that once we start
pouring sand down hole the problem will
go away. Crew starts disassembling cyclone
& tooling to move Schramm off hole and
put Becker back on.

14:20 Crew unable to get sufficient air pressure
to the rod truck to move it. They
discover hose has detached under the
bed. Crew effects repairs

15:40 Carl Cole onsite. Hose repaired. Bob
moves Schramm off hole and leaves
sole with rig.

15:50 I drive to UID office to escort
MP truck to site to load drums
for transport to 90-Day yard.

16:00 Back at D-12 crew has driven
drum truck to the edge of Rogers Road
where they will boom drums onto
lift gate of MP truck. Nate handles clamp
tow operator boom. Darrel (MP driver)
unclamps on truck and dollies them inside
Larry McFarland and Dean Reynolds (TRAD)
are onsite to witness and sign manifests.
There are 8 drums total. I estimate weight
at 4800 lbs. All are soil cuttings with a trace of
free water PARSNZ0425701 and PARSNZ0425901 thru 07
I direct traffic on narrow roadway
while crew operates. Larry looks over
Manifest and signs.

9/16/04 (cont)

- 16:45 Truck is loaded. Darrel Clayer signs manifest # P4006 and takes it with him driving transport. He places truck & we head to 90 day yard.
- 17:05 At 90 day yard we unload drums and place 2 per pallet, separating pallets by 3 ft and facing labels to the outside. Dollying drums is difficult on the uneven old asphalt and we will bring rollers boom truck in the future for unloading. Darrel has me sign loading ticket # 516824.
- 17:20 All parties take copy of signed manifest and we leave 90 day yard and lock gate. I go to 614 to complete paper work.
- 18:00 I leave site for town. Richard Turk calls for an update. We will set well tomorrow.

~~Walt Lunn~~

9/17/04 Friday

weather (lean (40°-75°)

am wind 10 mph to NW

- 7:04 I arrive at D-12. Tom calls to say they are running late as they had to load additional material to backfill the hole bottom. Richard, Carl and Mary Ellen and I have agreed to sand well from bottom up to 320 ft where we are in upper fat clay zone and then set a 10 foot seal of time released bentonite pellets to cover 320 to 310' bgs. We then will screen gravel zones from 310 to 290.
- 7:45 Crew arrives. Patrick G. McGannon is filling in for Mike Winmill today so I go thru the SSHSP (Appendix E of the workplan) with him and have him sign plan acceptance form. We also have target H&S. Topic: Lifting hazards from sand bags.
- 8:00 Crew begins moving Becker Hammer back over borehole. I try w.L. but it is still sticking
- 8:30 Carl hole oversight. He asks about a bedrock W.L. I explain the problem but drillers believe a few bags of sand down hole will coat the sticky sides of the casing and allow for it. Carl is concerned the sand will slug the water and cause some displacement so we should give it some time to equilibrate
- 8:45 Crew is struggling to get rig back over hole. They have no room for error side to side and ground is very unlevel. Carl leaves site. I do rig inspection of Becker Hammer and auxiliary compressor while they try
- 9:20 Rig is finally lined up on borehole. Crew prepares to sand backfill to 320' bgs
- 10:50 After adding 1 bag of Colorado silica (16-40) 50 lb bag, we are able to get the tape down. W.L. is 336.2' bgs. Crew sets to pull some casing

9/14/04 (cont)

10:30 15-50 1/2 bags in hole, Sound top of sand @ 332'
10' of 6" hole 14' of 9" hole

10:45 9 - more bag Sound top of sand @ 320.5'

10:58 We add 1 bucket of Time released (TR30-5016) geotextile pellets. They bridge 6" above bit! We hammer and blow air and hammer and blow air and eventually it unplugs (ugh)

11:20 Carl Cole aside. We add 7 more buckets of pellets which bring top of seal to 310.5' bgs. We have pulled bit up to 307' bgs. We sound for water but there is none

12:05 We hydrate pellets with 30 gallons of approved source water (WWII) and have lunch and allow to hydrate

12:22 I take w.l. Still 17' of water column but going down slowly. Richard Jurick calls to check on progress

13:10 We have pulled bit up to 298' bgs. Water is at 295.1' bgs and going down very slowly. This is water we added to hydrate hole and not ground water. We are pulling 5 feet of casing at a time to try to expose a producing layer.

13:40 We have pulled up to 285 and WL has come up to 292 but no more

14:40 We have pulled up to 265 and WL is 291.5

14:55 We " " " " 255 " " " 291.3 bgs
This should have put bit above last substantial fine grained layer and leaves little likelihood of substantial producing well as we have pulled it. We are going to lock lifting plug on well head so Richard Jurick can monitor recharge over weekends

15:20 Carl Cole has suggested we pull 5 more feet out and remove 10' section so Richard can more easily remove lifting plug. Upon doing this we get a W.L. of 283 to top of

9/17/04 (cont)

casing at 281.6 bgs which is substantially
more recharge. I decide to go back
to building 614 for an hour and then
return & take another reading. Layre
crew leaves site for weekend. Richard
is exploring the possibility of getting the
Schramm back to deepen well into
bedrock

16:37 Back at D-12: W.L. = 279.6' TOX. I lock
well head and leave indicator in the boom
truck for Richard over the weekend.

17:07 I leave site

Matthew
9/17/04

9/20/04 Murray

weather: Overcast; cold (~30°)
am wind (10 mph to N.W)

6:40 I arrive at site and Richard calls

He took a w.l. on Saturday and recorded the following

9/18/04 15:38 261.53 TOC

15:52 261.52 "

16:03 261.50 "

16:15 261.48 "

6:55 I take w.l. now 261.48 "

which is ~ 258.66 g.s. which is seemingly where
water was last time we pulled out of hole and
several feet below our bit at ~ 248' bgs

I speak with Carl Cole he is bringing out
a topo map so we can pinpoint nearby w.l.'s

7:50 Carl onsite. We determine ground surface to
be approx 4815 ft. This would place our existing
w.l. at (4815 - 258.66) 4556.34. W.L.'s from
Fall 2003 indicate the following elevations:

well	elevation
B-02 (P6-3)	4466.51
C-18	4465.12
C-13	4460.42
C-31	4466.25
C-15	4464.43
C-12	4463.45
D-02	4374.85

If D-12 is similar to B-02 thru C-12 we should see water
at about 350 ft

If D-12 is similar to D-02 we should see water
at about 440 ft

In either event this water appears to be nearly a
perched zone and it is decided we will
drill into bedrock deeper to find regional ground
water table

8:25 I call Richard and he will alert Tom to bring
out the Schramm with him when he
comes. I saw hole bottom at 290.4' bgs

9/20/04 (cont)

- 9:10 Nate Salazar arrives with the Schramm
- 9:20 Tom arrives with new hand David Kyle
I give Dave the SSHSP (Appendix C of W.P.)
to read thru. He reads while Tom & Nate
warm up rig & fuel. I do rig inspection
at this time.
- 9:45 Dave has read and signed plan acceptance
form.
- 10:05 We have a tailgate H&S meeting on rig moving
hazards.
- 10:16 Crew begins hammering casing back down hole
to bottom of 9" hole at 346'. We set up secondary
containment and Has Waste drum.
- 10:45 Down to 290' bgs. Carl leaves site.
- 11:00 @ 295 Drum full PARSNZ0426401
- 11:40 Crew is struggling to keep the hammer running
It needs resistance to operate well so reentering
an open or loosely filled hole is difficult.
- 12:10 Hammer is working but have hit something hard
at 299'
- 12:15 Crew takes food break
- 12:30 Crew hammering again
- 12:35 @ 300 2nd Drum full PARSNZ0426402
- 12:49 @ 315 3rd Drum full " 03 - includes bentonite plug
- 13:00 Carl Cole onsite
- 13:15 @ 325 4th Drum full " 04 - mostly bentonite & 16-40 sand
- 13:50 @ 331 5th Drum full " 05
- 14:20 @ 342 6th Drum full " 06
- Crew moves becker off hole and Schramm on
Carl leaves site. I go to 90 day yard to change
bolts on drums to non-locking bolts.
- 16:10 Back at site crew is just getting Schramm aligned
over hole.
- 17:10 Crew has ~~not~~ tripped 60 feet of rod into hole
All hands off site

~~W. J. [unclear]~~ 9/20/04

9/21/04 Tuesday

weather: overcast (~30°)

am: NO WIND

- 6:50 I arrive at site and replace thinning caution tape that denotes exclusion zone, and pick up debris scattered by high winds.
- 7:20 Drill crew arrives. Tom has an emergency meeting with his sons doctor at around 13:00 and will have to shut power. They warm up rig and I do rig inspection of the Schwann.
- 7:38 We have tailgate H's meeting. Topic: Do not hurry the job! but be efficient & effective. Carl Cole onsite.
- 8:00 Crew lowers remaining rods down hole while I label some drums.
- 8:25 Rods are on hole bottom at ~345'. Crew hooks boom to exhaust hose for cyclone.
- 8:40 Begin pulling at 345'.
- 9:10 Unable to get cuttings to surface after initial sand and water are purged from borehole at 356'. I calibrate PID 103.6 ppm on 100ppm isobutylene. Crew is hooking up second compressor.
- 9:20 Still no cuttings at the cyclone.
- 9:40 Crew reverses flow & blew out plug at surface.
- 10:05 Drilling at 356'
- | | | | | |
|-------|-----------------|-----------|---------------|----------|
| 10:15 | 1 st | Drum Full | PARSNZ0426501 | 356-361' |
| 10:41 | 2 nd | " " | " 02 | 361-365' |
| 11:05 | 3 rd | " 2/3" | " 03 | 365-370' |
- 11:15 Hole is caving at 365 making it difficult to back hammer out of hole. Tom fears going deeper with result in stuck drill string. I consult with Carl and Richard. Tom open this end of 6" pipe and I send sounder down. Water level in pipe is 338.7' bgs just as it was last Friday when we had left bottom of hole open overnight before sanding and sealing off bedrock. We pull 6" up above 9" bit to 4' try to sound bottom of hole but are unable to get sounder past 6" bit.

9/21/04 ~~Monday~~ ^{Tuesday}
12:05 Crew leaves site for SLG - 1 lock partially
fills drum and call Richard
12:30 I leave site till tomorrow where we will
attempt to screen the water table from
365 to 345' bgs assuming hole stays open.

Walt Law
9/21/04

9/22/04 Thursday

weather clear (~30°)

no wind

- 6:40 I arrive at building 614
- 7:05 I arrive at site (D-12)
- 7:25 Crew arrives - late because they were loading pallets. We have H&S tailgate inspection
- 7:40 Carl Cole onsite
- 7:50 Jeff Bigelow onsite
- 8:10 Crew lowers 6" to 345 and I take water level thru 6" pipe 336.2' bgs
- 8:30 Crew is able to lower pipe to 365 without drilling
- 8:40 Crew trips out 6"
- 9:00 Jeff Bigelow leaves site. Crew has 6" out of hole. We sound bottom at 364' bgs. We take W.L. at 336.2' bgs. Crew will now dismantle Schramm and remove it from hole, get Becker back on hole, move has waste drums & drum truck, clean up drilling materials from site and then set well w borehole
- 9:50 Carl Cole onsite. Dave Shank & Jen Cowan call to see what's going on out here
- 10:01 Crew moves Schramm on truck from site
- 10:30 Crew moves Becker over hole
- 11:00 Crew begins lowering well material down hole
1-6" bottom cap, 2-70' sections of .010 slot schedule 40 casing, 34-10' sections of blank schedule 40 casing, 1-5' section of schedule 40 casing.
- 11:45 Well touches bottom with 3" stickup - 362.5' bgs. We lift well 6" off bottom which places bottom of the screen at 361.5' bgs, top of screen at 341.5'
- 12:02 Crew breaks for food. Carl Cole leaves site. I call Richard with the update.
- 12:30 Crew removes 5' of 9" casing and begins sanding well
- 13:35 Carl Cole onsite. 16-50lb bags of 16-40 sand brings top of sand to 339' bgs.

9/22/04 (cont.)

Filter pack volume calculation;

Borehole annulus volume - well casing volume
 $(D^2 \times .785 (\text{Cantoles constant}) \times L) - (D^2 \times .485 \times L)$

We have two calculations

9" borehole from 339 to 346

6" borehole from 346 to 363

for 9"

$$[(.75 \text{ ft})^2 \times .785 \times 7 \text{ ft}] - [(.33 \text{ ft})^2 \times .485 \times 7 \text{ ft}]$$

$$3.09 - 0.6 = 2.45 \text{ ft}^3$$

for 6"

$$[(.5 \text{ ft})^2 \times .785 \times 17 \text{ ft}] - [(.33 \text{ ft})^2 \times .485 \times 17 \text{ ft}]$$

$$3.34 - 1.48 = 1.86 \text{ ft}^3$$

so

$$(2.45 + 1.86) \text{ ft}^3 = 4.35 \text{ ft}^3$$

so

$$4.35 \text{ ft}^3 \div .5 \text{ ft}^3/\text{per bag sand} = \text{approx } 9 \text{ bags}$$

We needed 16 bags to fill this volume
 so the hole is taking sand into fractures
 and the last covered 5 feet of the borehole

13:50 Top of sand has remained at 339' bgs

14:10 Crew pulls 10' of casing from string and
 we add 6 buckets of time released bentonite
 pellets to bring top of seal to 334' bgs + hydrate.

14:50 Crew has decided to not begin slurry process
 until tomorrow morning so they clean up
 site and Dave takes the Schramm back to SEC

15:20 Tom and I go and look at location of next
 hole (D-13) in case he mobs to well site
 while I'm not here.

15:48 I speak with Richard and Jeff who have
 arranged to have drums moved tomorrow
 at 9:00 am. I will coordinate this as we will
 need to use prum truck boom to load and
 unload drums. I put locks on drums

16:15 All hands off site

Matt Lutz 9/22/04

9/23/04 Thursday

weather clear (2250)
10 mph winds to NW

- 6:30 I arrive at site to polish drums - rain and dust covers them all the last few days - and remove locks and locking bolts.
- 7:02 Crew arrives at site and warms up rigs. We inspect groat plant and drum truck that will be going to 90-Day yard later to unload drums.
- 7:20 Crew has brought a new hand Ricki Smith so I have him read Appendix C-581SP of the workplan and sign plan acceptance form.
- 7:40 We have H&S tailgate Topic: berbomite shipping hazards.
- 8:10 Crew gets equipment in place for groating.
- 9:00 We shut down to move drums to 90 Day yard.
- 9:05 MP Dwyer (Darrel) arrives at Rodgers Road. Crew begins loading drums.
- 9:15 Larry Hefarhaus and Judy Meoy (TEAD) arrive.
- 9:25 9 drums loaded PARSN20426401 thru 06 and PARSN20426501 thru 03.
- Drums are manifested under # P4007.
- We drive to 90 Day yard.
- 10:05 Drums are unloaded on pallets. We also replace a pallet broken last week unloading with the drum tolly. We used boom truck this week. Loading ticket # 516956.
- All hands back to D-12. Curt Alloway and Jeff Bigelow onsite at 90-Day yard.
- 10:15 Groat is being mixed in a 55 gallon drum which is plumbed into the offboard groat pump. Crew is using 50 lb bags of Pure Gold High Solids Berbomite Clay groat which provides 30% Solids when mixed with 14 gallons of water. This yields a mud weight of 10-10.2 lbs/gallon and fills 2.2 cubic feet. Crew mixes 2 bags per batch in ~ 20 gallons water.

9/23/04 (cont)

Tom says he will mix 10 batches and fill drill pipe and then pull a few sections making sure to always have grout up inside pipe string so no boulders can fall into annulus and kink well casing (or crack).

11:10 I go to building 614 where Jeff Bigelow is going to train me as to how to enter IRW data in the Database

11:40 Unable to access data base - server is not responding. Jeff and I do a visual inspection of Dryums in the 80 day yard and use written checklist. I return to D-12

12:20 Crew is breaking for lunch - they have mixed 10 batches (20 bags) of grout which brought slurry to surface in well (only the annulus between the 6" inner casing and 4" well is filled). They then pulled 90 feet of casing. I ask if they have enough water. They have only $\frac{1}{3}$ tank. I call Gary Porter to see if we can reload from WWII before TEAD utility crew is gone for the weekend. (They don't work Fridays). Gary Polaski can meet us there before he heads to DCD for the afternoon. We tie down the load and head to well. I stop at 614 on the way so Jeff needs file box.

13:35 Crew is back at site and has mixed an additional 16 bags - 8 batches and pulled a total of 160 feet. Crew notices how much water we are using and we call to see if Gary can fill us one more time. He says we can meet at 3:15. Cable has come loose from Dryum (main lifting cable). It is frayed on the end and has much usage so crew changes it out with a new one.

9/23/04 (cont)

13:40 Carl Cole onsite

14:00 ~~220~~ feet out of hole - Carl Cole leaves site for the day15:00 ~~250~~ feet out of hole - Nate and I head back to WWII to meet Gary Polaski and fill truck once more as crew will need water to finish grouting and D-con.

16:00 Crew has been mixing and pumping for an hour 280 feet out of hole

I calculate borehole volume - while the bit is 9" OD. the borehole tends to be 9.5 to 10" diameter due to cobble gravel volume. I will use 9.5 for calculation

$$[(4.914)^2 \times .785 \times 329 \text{ ft}] - [(3.33 \text{ ft})^2 \times .785 \times 329 \text{ ft}]$$

$$161.7 \text{ MI } \underline{23,308 \text{ ft}^3} - 28.6 \text{ ft}^3$$

$$= 133.1 \text{ ft}^3 \div 2.2 \text{ ft}^3/\text{bag} = 60.5 \text{ bags}$$

16:50 Crew has last piece of casing out of hole they pump grout to 20 ft hgs. This took a total of 96 bags (2 pallets) so the hole took 50% more than anticipated. Crew cleans up site and will bring surface casing and more grout and cement for completion tomorrow

17:15 All hands off site

~~W. J. J. / cont 9/23/04~~

Friday 9/24/04

weather clear (~40° -
no wind)

- 07:15 I arrive at site. Crew is late loading material
- 08:10 Crew arrives at site and mixes 6 more bags of bentonite (3 batches) and adds to borehole. This brings grout to surface but it will settle some.
- 09:40 We have tailgate H&S Topic: Powdered bentonite respiratory hazards.
- 10:00 Crew moves equipment to the 90 day yard for deconning. Because Tams pump is electric I have brought a generator to the site but for future we will explore the possibility of power onsite with U/D. I do my inspection here.
- 13:20 Crew has deconned pipe trucks, pipe and drill rig generating 125 gallons of waste which is pumped into the Baker tank which is affixed with a Haz Waste label. We chain generator to frac tank to ground againsts theft. We head back to D-12.
- 14:10 Crew mixes grout to pour in hole and allow to set up over weekend so they can get surface casing on it. 12 bags concrete bring cement from ~8' to 2.5' bgs. Crew will come tomorrow and do the surface completion of well (casing, bollards cement pad, survey plug). They use a locking compression plug to secure the well until then. They are taking the Baker Hammer back to SLK to fit it with a rotary attachment so we don't need to bring out the Schramm each time we encounter refusal or bedrock. I will not return until crew is near ready to begin drilling our next well D-13.
- 14:45 All hands offsite

Walt 9/24/04

Tuesday 9/28/04

weather partly cloudy (50-75°)

15-30 mph from SE, gusting

- 8:00 I speak to Chris Davis (Layco) He expects rig to be ready to leave shop in a few hours. Tom and Dave are at Depot painting completion of D-12. I call Richard Jurk and Jeff Bigelow w/ news.
- 9:10 I leave for Tooele. I call Joe Cowan w/ update.
- 9:45 I arrive at D-12. Cap is bolted to completion so I call Carl Cole and tell him well is ready for Government Issue lock. I drive to 90 Day yards to load generator to return to Kleinwefelwer.
- 11:10 Tom Kern calls. He is back at Layco and will check on rig & call back.
- 12:50 Tom calls. They are leaving shop with rig in 10 minutes.
- 14:05 Crew arrives with rig - Tom and Dave Kyle. They lay down visqueen and move rig over staked location and raise mast.
- 14:20 Crew backs pipe truck up to rig.
- 14:30 We have Darley H²S tri-gate Topic new hazards associated with rotary attachment.
- 14:40 I perform rig inspection of Becker hammer. Carl Cole onsite. He has locked D-12 and is returning lock, key and compressor cap for D-12. Crew is hooking up auxiliary compressor and waiting for Nate to arrive with level.
- 15:20 Nate arrives with level. Crew fires up rig and compressor and lifts bit and 9"-10 foot casing section into place. I prepare chip tray & sample bags.
- 15:45 Began drilling D-13
- 17:10 D-13 is 40' deep. All hands onsite.

~~Walt/Long~~

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/1/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>8:00</u>			
Team Leader: <u>Jeff Bigelow</u>		Departure Time / Destination: <u>18:30 / SLG</u>			
Team Members: <u>Matt Ivanc</u>		Weather: <u>clear (~75°) windy</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>10:00</u> People Present <u>13 (See page 1 logbook)</u>					
Topics Discussed: <u>Site Specific Health & Safety Plan overview</u>					
Logbook Book # <u>B071503</u> Page # <u>1 & 2</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N _____		Current Location: _____ Update DITF?: Y / N _____			
Notes: <u>8:00 Meet with Jeff B. & Richard J to discuss project</u>					
<u>10:00 Begin Kickoff meeting - 13 people present (see page 1 logbook)</u>					
<u>11:20 Visit site of 90-day yard (new) and decom pos location</u>					
<u>13:30 Leave site for SLG</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/2/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>8:00</u>			
Team Leader: <u>Jeff Bigalow</u>		Departure Time Destination: <u>16:30/Motel</u>			
Team Members: <u>Matt Ivers</u>		Weather: <u>Overcast (65°)</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>8:30</u> People Present <u>5 (Layne Crew, Ivers, Turner)</u>					
Topics Discussed: <u>Grass Fires, Cyclope Punch Points, Inhalation Hazards, PPE</u>					
Logbook Book # <u>8071503</u> Page # <u>3:4</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____		Roll # _____ Frame # _____			
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N _____		Current Location: _____ Update DITF?: Y / N _____			
Notes: <u>8:00 Arrive at site, procure water from WW 3. Have HIS tailgate erect exclusion zone 9:30 Begin drilling 10:30 Shut down to discuss logging with Carl Cole - emphasis on consistency between geologists and following format of ASTM standards, using USACE log paper 12:05 @ 90' rock w pipe ends 12:35 Resume Drilling 12:43 100' deep. Crew goes to build De-con pad. Richard oversees 16:30 I leave site to log at Motel.</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: 744139/20010 Date: 9/3/04
 SWMU: 58 Arrival Time: 7:00
 Team Leader: Jeff Bigelow Departure Time / Destination: 17:35
 Team Members: Matt Ivers Weather: Rain (60°)

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey
☐ Soil Gas Survey
☐ Hydropunch
☐ Test Pit
☐ GPS
☐ CPT
☐ Other (specify) _____

- ☒ Well Installation D-12
☐ Well Development _____
☐ Microwell Sampling
☐ Monitor Well Sampling
☐ Vertical Boring
☐ Angle Boring
☐ Hand Auger
☐ Surface Soil Sampling

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 7:00am People Present 4 (Layne Crew, Matt Ivers)

Topics Discussed: Rogers Road Traffic, Hand & Finger Safety

Logbook Book # B071503
 Page # 5

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring
 Notified ☐ Range Control/Security (460)
☐ Pillbox Support ☐ Meteorology

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s)

Closed?: Y/N Current Location: Update DITF?: Y/N

Notes: 7:00 H&S talk, Fuel warm rig, short lightning break
8:15 Begin drilling @ 100'
9:02 Roos Plugging. Standby for securo
compressor to lift cuttings. 13:00 Compressor on site 13:20
Begin drilling @ 120' 16:12 Drilling ends @ 210'
16:40 To Building 614 for paper work 17:35 off site

FIELD ACTIVITY REPORT

Project Number/WBS: 744139/20010

Date: 9/7/2004

SWMU: 58

Arrival Time: 7:00

Team Leader: Jeff Byelow

Departure Time \ Destination: 16:15

Team Members: Matt Ivers

Weather: clear (45-85°)

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey
- ☐ Soil Gas Survey
- ☐ Hydropunch
- ☐ Test Pit
- ☐ GPS
- ☐ CPT
- ☐ Other (specify) _____

- ☒ Well Installation D-12
- ☐ Well Development _____
- ☐ Microwell Sampling
- ☐ Monitor Well Sampling
- ☐ Vertical Boring
- ☐ Angle Boring
- ☐ Hand Auger
- ☐ Surface Soil Sampling

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 7:20 People Present 5 (T.K, N.S, M.W, M.J, S.L.)

Topics Discussed: PPE in the saturated zone, Drum movement hazard

Logbook Book # B071503
Page # 7

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring
Notified ☐ Range Control/Security (460)
☐ Pillbox Support ☐ Meteorology

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s)

Closed?: Y / N

Current Location:

Update DITE?: Y / N

Notes: 7:00 Arrive 7:20 H&S 7:35 Rig inspection 7:45 Begin

Drilling @ 210 ft 10:45 @ 250' no more casing

outside - we wait 11:10 Drilling maintenance crew

finds crack in radiator. They remove it run to shop

I work in Build 614. 14:30 Carl drops UID excavation permit at 614. 15:30 I go to D-12 to check progress 16:10 Crew has repaired radiator and are installing. No more drilling. I leave Depot.

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/8/09</u>
SWMU: <u>58</u>		Arrival Time: <u>7:00</u>
Team Leader: <u>Jeff Bigelow</u>		Departure Time / Destination: <u>16:48</u>
Team Members: <u>Matt Ivers</u>		Weather: <u>clear (50-80°)</u>

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A	<u>Layne Crew (TK, NS, MW)</u> <u>Kiewit Co. (M.I.)</u> <u>Parsons (J.T.)</u>
Health and Safety Briefing: Time <u>7:10</u> People Present _____	
Topics Discussed: <u>Cyclone Hazards</u>	

Logbook Book # <u>B071503</u> Page # <u>9</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
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Photos Camera # _____	Roll # _____	Frame # _____
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IDW Drums: Purge / Rinse / Soil / Other	#ES(s)
Closed?: Y / N	Current Location: _____
Update DITF?: Y / N	

Notes: 7:00 Arrive at site w/crew. Jill Thomas onsite for
inspection 7:10 H&S tailgate 7:30 Begin Drilling @ 250'
8:45 Jeff Bigelow onsite. At 276' we hit a limestone boulder
that won't break 9:40 @ 277' we hit cemented gravel - very
hard - almost no penetration 10:36 Discharge hose breaks off
head - shut down to repair 15:00 Rig repaired drilling again
16:10 Carl Cole onsite 16:30 @ 279' head is overheating. we shut
down for day 16:48 All hands off sight

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/9/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:00</u>			
Team Leader: <u>Jeff Bigelow</u>		Departure Time / Destination: <u>16:45</u>			
Team Members: <u>Matt Luens</u>		Weather: _____			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-17</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-17</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
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Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A <div style="float: right; text-align: right;"> Layne Crew (TK, NS, uw) Kleinbelow (MI) </div>					
Health and Safety Briefing: Time <u>7:10</u> People Present <u>4</u>					
Topics Discussed: <u>Items addressed by Jeff Thomas at yesterday's inspection</u>					
Logbook Book # <u>B071503</u> Page # <u>10</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____ Closed?: Y / N Current Location: _____ Update DITF?: Y / N					
Notes: <u>7:00 Arrive at site 7:05 Crew arrives 7:10 H&S, fluids</u> <u>refill, warm rig 7:35 Begin drilling @ 279 16:30 End drilling</u> <u>@ 323 ft. Still not in water 16:45 All hands off site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/10/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>6:45</u>			
Team Leader: <u>Jeff Bigelow</u>		Departure Time \ Destination: <u>15:40</u>			
Team Members: <u>Matt Ivers</u>		Weather: <u>clear (40-80°) wind 10 to 15</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A <div style="float: right; text-align: right;"> <u>5</u> <u>Layne (TR, US, MW)</u> <u>KA (MI)</u> <u>Parson (JB)</u> </div>					
Health and Safety Briefing: Time <u>7:15</u> People Present <u>5</u>					
Topics Discussed: <u>PPE in salvagers zone</u>					
Logbook Book # <u>B071503</u> Page # <u>11</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____			
		Update DITF?: Y / N			
Notes: <u>6:45 Arrive at bulb 614 7:05 Arrive at D-12 7:15 Do HIS</u> <u>and vehicle inspection 8:00 Call Chris Davis and order well</u> <u>materials 9:00 Begin drilling at 323 ft 15:10 Stop drilling</u> <u>at 343 where hole is too tight. We saw bottom at 344.2</u> <u>lbs and water at 340.0 lbs. We quit now to let</u> <u>water come in well 15:40 Jeff leaves site, I sign</u> <u>Drillers Daylogs</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: 744139/20010

Date: 9/13/04

SWMU: 58

Arrival Time: 7:00

Team Leader: Jeff Bigelow

Departure Time / Destination: 16:05

Team Members: Matt Ivers

Weather: Clear (40-75°) wind 5-10 mph to NW

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey
- ☐ Soil Gas Survey
- ☐ Hydropunch
- ☐ Test Pit
- ☐ GPS
- ☐ CPT
- ☐ Other (specify) _____

- ☒ Well Installation D-12
- ☐ Well Development _____
- ☐ Microwell Sampling
- ☐ Monitor Well Sampling
- ☐ Vertical Boring
- ☐ Angle Boring
- ☐ Hand Auger
- ☐ Surface Soil Sampling

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 7:35 People Present Layne Crew & Me

Topics Discussed: Back Injuries

Logbook Book # B071503
Page # 15-16

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring
Notified ☐ Range Control/Security (460)
☐ Pillbox Support ☐ Meteorology

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s)

Closed?: Y / N

Current Location:

Update DITF?: Y / N

Notes: 7:00 Arrive onsite 7:45 Jeff labels drums 8:00 Carl take
onsite we take w.c. 336.4 sound Bottom 344.2 = 7.8 ft H₂O
3.6 ft new since Friday 8:50 Pull last 30' of hole 9:10 Back on
bottom 11:50 Drilled 6 inches in 2.5 hrs 12:40 Drilling again
15:10 Shut down rig - Drilled 8" in last 2 1/2 hours. Layne
says no more beating up rig. We will pull out & try
something different 15:30 Carl & I take another w.c. core
out of bottom 30' w.c. = 337.2 coming up an inch every few min.
16:05 I leave site 50 ft out of hole. Very tight

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/2010</u>		Date: <u>9/19/04</u>	
SWMU: <u>58</u>		Arrival Time: <u>7:35</u>	
Team Leader: <u>Jeff Bigelow</u>		Departure Time \ Destination: <u>17:05</u>	
Team Members: <u>Matt Luens</u>		Weather: <u>clear (40°-70°) wwo sun</u>	

Purpose: (Attach all appropriate forms)		<input checked="" type="checkbox"/> Well Installation <u>D-12</u>
<input type="checkbox"/> Geophysical Survey		<input type="checkbox"/> Well Development
<input type="checkbox"/> Soil Gas Survey		<input type="checkbox"/> Microwell Sampling
<input type="checkbox"/> Hydropunch		<input type="checkbox"/> Monitor Well Sampling
<input type="checkbox"/> Test Pit		<input type="checkbox"/> Vertical Boring
<input type="checkbox"/> GPS		<input type="checkbox"/> Angle Boring
<input type="checkbox"/> CPT		<input type="checkbox"/> Hand Auger
<input type="checkbox"/> Other (specify) _____		<input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A	
Health and Safety Briefing: Time <u>7:35</u> People Present <u>4</u> <u>Layne crew & I</u>	
Topics Discussed: <u>Moving Vehicle Safety</u>	

Logbook Book # <u>B071503</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring
Page # <u>13, 14</u>	Notified <input type="checkbox"/> Range Control/Security (460)
	<input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology

Photos Camera # _____	Roll # _____	Frame # _____
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IDW Drums: Purge / Rinse / Soil / Other #ES(s)
Closed?: Y / N Current Location: _____ Update DITE?: Y / N

Notes:
<u>7:35 arrive at D-12 have H/S and w speed vehicle</u>
<u>9:00 Jill Thomas onsite when I return from 6/4. We deal with</u>
<u>her concerns 10:05 Crew has pulled all but 60 ft</u>
<u>from borehole 11:10 Bit out of hole - Dull Water Level 263.5</u>
<u>11:55 Outhouse serviced 12:30 Begin sewing pipe with new bit</u>
<u>back down hole 14:50 Carl Cole, Mary Ellen, Helge, Larry</u>
<u>onsite 15:35 visitors offsite 16:40 200' in hole. W.L. = 258.3</u>
<u>Bottom caved to 263.0 17:05 All hands offsite</u>

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/15/04</u>	
SWMU: <u>58</u>		Arrival Time: <u>6:30</u>	
Team Leader: <u>Jeff Bigelow</u>		Departure Time / Destination: <u>16:30</u>	
Team Members: <u>Matt Ivers</u>		Weather: <u>clear (35°-75°F)</u>	

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A	
Health and Safety Briefing: Time <u>10:50</u> People Present <u>3</u> <u>Layne (T.K. & M.W.)</u> <u>Kiewit (Ivers)</u>	
Topics Discussed: <u>Drum lifting truck</u>	

Logbook Book # <u>B070503</u> Page # <u>17</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
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Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____	
Closed?: Y / N Current Location: _____	Update DITF?: Y / N

Notes: 6:30 Arrive at 614 305 Arrive at D-12 7:35 Mike arrives
with well supplies 7:50 Tam arrives We do rig inspection 8:20
Take water level 258.03 9:40 260 ft of casing in hole - cuttings
start at 263 10:00 Calibrate PID (101.6 on 100 label) 10:50 Connect
HSS tailgate 11:00 Hammer running at 263 15:10 Down to 345'
2 full drums and 1 partial drum collected 16:30 offsite

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/16/04</u>	
SWMU: <u>58</u>		Arrival Time: <u>7:00</u>	
Team Leader: <u>Jeff Bigel</u>		Departure Time \ Destination: <u>19:00</u>	
Team Members: <u>Math Luers</u>		Weather: <u>clear (35-75°)</u>	

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A		<u>Layne (TK, BH, NS)</u>	
Health and Safety Briefing: Time <u>8:00</u> People Present <u>Kleinfelder (ME)</u>			
Topics Discussed: _____			

Logbook Book # <u>B071503</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring
Page # <u>19, 20, 21</u>	
	Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology

Photos Camera # _____	Roll # _____	Frame # _____
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IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____
Closed?: Y / N Current Location: _____ Update DITF?: Y / N

Notes: 7:03 Arrive at site. Bob Hydelman is working for Mike Winmill so I go over SS&SP and he signs plan acceptance 7:40
New drill rig - Schramm - 1 hr inspection 8:00 H&S talk 9:00
Began lowering down hole 10:20 hammer on bottom 10:25 Drill
10:50 356' - all angular sandstone - bedrock 11:45 Trip out ODEX
13:38 ODEX out of hole 14:20 air line on rod truck broken 15:40 Airline repaired
Schramm leaves site 15:50 MP arrives to transport drums 17:20 8 drums
relocated to 90 day yard PARSNZ0425701 and PARSNZ0425901 thru OF
Manifest # P4006. load ticket 516824. 1900 Off site

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/17/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:03</u>			
Team Leader: <u>Jeff Bigelow</u>		Departure Time / Destination: <u>17:07</u>			
Team Members: <u>Matt Ivers</u>		Weather: <u>Clear (35-40°)</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A		<u>Layne (T.K.N.S.P.M.)</u>			
Health and Safety Briefing: Time <u>750</u> People Present <u>Klenckler (M.I.)</u>					
Topics Discussed: <u>lifting sand bags</u>					
Logbook Book # <u>B071503</u> Page # <u>22, 23, 24</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____		Roll # _____ Frame # _____			
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N _____		Current Location: _____ Update DITF?: Y / N _____			
Notes: <u>7:03 arrive at site 7:45 Crew arrives. New Employee</u> <u>Patrick McMahon reads S&H SP and signs plan acceptance - We have</u> <u>tailgate H&S Top 8:45 I do rig inspection Crew attempts to get</u> <u>Becker back over hole 9:20 Rig over hole 9:50 W.C. = 336.2 10:45</u> <u>Hole sampler to 320.5 12:00 Hole bentonite to 310.5 & hydrates</u> <u>15:20 Having becker pipe to 255' bgs & made little water, but pulling</u> <u>pipe to 250' bgs we make 210' and rising slowly. We will</u> <u>let water rise over weekend. 17:07 OFF site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/20/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>6:40</u>			
Team Leader: <u>Jeff Bigelow</u>		Departure Time / Destination: <u>17:10</u>			
Team Members: <u>Matt Iwen</u>		Weather: <u>overcast (30° - 65°)</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-17</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-17</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-17</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>10:05</u> People Present <u>4</u> <u>Layne (TK, US, DK)</u> <u>Kleinfelder (MI)</u>					
Topics Discussed: <u>Vehicle Hazards</u>					
Logbook Book # <u>B071503</u> Page # <u>25, 26</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____			
Update DITF?: Y / N					
Notes: <u>6:40 Arrive at site check well 261.48 7:50 Cut onsite with</u> <u>topo map. We determine we are much to high to be in</u> <u>regional water table and water is perched. We will re-drill</u> <u>9" to 346 and drum cuttings. 14:20 9" Down to 342</u> <u>Crew tries to live Schramm on hole. I go to 90-Day</u> <u>year inspection & change out locking bolts 16:10. Schramm</u> <u>is ready to trip in 17:10. 60' of rod and 5' hammer</u> <u>down hole All hands off site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744/39/20010</u>		Date: <u>9/21/04</u>	
SWMU: <u>58</u>		Arrival Time: <u>6:50</u>	
Team Leader: <u>Jeff Bigelow</u>		Departure Time / Destination: <u>12:30</u>	
Team Members: <u>Matt Ivers</u>		Weather: <u>overcast (~30°) no wind</u>	

Purpose: (Attach all appropriate forms)		<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling _____ <input type="checkbox"/> Monitor Well Sampling _____ <input type="checkbox"/> Vertical Boring _____ <input type="checkbox"/> Angle Boring _____ <input type="checkbox"/> Hand Auger _____ <input type="checkbox"/> Surface Soil Sampling _____	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____			

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A		<u>Layne (TK, US, DK)</u>	
Health and Safety Briefing: Time <u>7:38</u> People Present <u>Kleinpelmer - Matt Ivers</u>			
Topics Discussed: <u>Don't rush - be effective and efficient</u>			

Logbook Book # <u>B071503</u> Page # <u>27</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring
	Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology

Photos Camera # _____	Roll # _____	Frame # _____
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IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____
Closed?: Y / N Current Location: _____ Update DITE?: Y / N
Notes: <u>6:50 Arrive at site 7:20 rig inspection 7:38 HES tailgate</u> <u>8:00 lower 6" downhole 8:25 Rocks on bottom (345') 8:40 Begin</u> <u>drilling 9:10 Can't raise collars - hook up aux. compressor 10:05</u> <u>Hole unplugged. Drilling @ 356' 11:15 Drilled to 370 but</u> <u>hole is caving at 365. Could not drill string, we take WL = 336.7</u> <u>12:00 Crew must leave for today (doctor) so we pull 6" up</u> <u>inside 9" and try to sound bottom but can't get by bit.</u> <u>Will lower bit to bottom in morning. Sound water, pull out</u> <u>and build well. 12:30 Offsite</u>

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/22/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>6:40</u>			
Team Leader: <u>Richard Jurik</u>		Departure Time / Destination: <u>16:15</u>			
Team Members: <u>Jeff T. Gebas, Matt Ivers</u>		Weather: <u>Clear (30-70°)</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>7:25</u> People Present <u>Layne (TK, US, DK)</u> <u>Kneufelner (Ivers)</u>					
Topics Discussed: <u>Vehicle Movement</u>					
Logbook Book # <u>BOF1503</u> Page # <u>29,30</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # <u>Digital (KA)</u> Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____ Closed?: Y / N _____ Current Location: _____ Update DITF?: Y / N _____					
Notes: <u>6:40 Arrive at 619 705 arrive at D-12 7:25 crew arrives</u> <u>8:10 Lower 6" to 345' and take W.L. = 336.2' bgs 8:30 Lower</u> <u>6" to 365 where it is caved 9:00 6" tripped out Sound bottom</u> <u>at 364' bgs W.L. = 336.2' bgs 9:40 Dismantle Schramm & move off hole</u> <u>10:30 Becker over hole 11:00 lower well down hole 11:45 Well</u> <u>on bottom - lift well 6" off: screen 361.5 to 341.5 bgs. 13:35 Well</u> <u>sanded to 339' bgs. 14:10 Bentonite seal to 334' bgs. 15:20</u> <u>Turn & visit D-13 site 16:15 All hands off site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/23/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>6:30</u>			
Team Leader: <u>Richard Junt</u>		Departure Time Destination: <u>17:15</u>			
Team Members: <u>Jeff Bigelow, Matt Ivers</u>		Weather: <u>Clear (25-80°)</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling _____ <input type="checkbox"/> Monitor Well Sampling _____ <input type="checkbox"/> Vertical Boring _____ <input type="checkbox"/> Angle Boring _____ <input type="checkbox"/> Hand Auger _____ <input type="checkbox"/> Surface Soil Sampling _____ </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling _____ <input type="checkbox"/> Monitor Well Sampling _____ <input type="checkbox"/> Vertical Boring _____ <input type="checkbox"/> Angle Boring _____ <input type="checkbox"/> Hand Auger _____ <input type="checkbox"/> Surface Soil Sampling _____
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling _____ <input type="checkbox"/> Monitor Well Sampling _____ <input type="checkbox"/> Vertical Boring _____ <input type="checkbox"/> Angle Boring _____ <input type="checkbox"/> Hand Auger _____ <input type="checkbox"/> Surface Soil Sampling _____				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>7:40</u> People Present <u>KA (Ivers)</u>					
Topics Discussed: <u>Bentoxide Slipping Hazard</u>					
Logbook Book # <u>B071503</u> Page # <u>31, 32, 33</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # <u>KA Digital</u> Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____			
		Update DITF?: Y / N			
Notes: <u>6:30 Arrive at site, clean drums, change locking bolts for crew</u> <u>arrives. New hand Ricki Smith reads SS&SP and signs acceptance</u> <u>for an 7:40 H&S talk 9:00 9 Drums to 80 Day yard PARSN 20426401 thru 06</u> <u>+ PARSN 20426501 thru 03 manifest P4007 load ticket 516956 10:15 Begin</u> <u>grouting 11:40 Do weekly drum inspection 12:20 90 feet out of hole</u> <u>go to wait for water 13:25 200' out of hole 14:00 290' out of hole</u> <u>16:50 Out of hole 96 bag of bentonite used to get to</u> <u>20' bgs. I calculated 60.5 to get to 10' bgs. so the hole</u> <u>is cased or very transmissive 17:15 Off site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/2000</u>		Date: <u>9/24/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:10</u>			
Team Leader: <u>Richard Jurik</u>		Departure Time / Destination: _____			
Team Members: <u>Jeff Bigelow, Matt Wers</u>		Weather: <u>clear (40-75°) no wind</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-12</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A <u>Layne (TK, NS, RS)</u>					
Health and Safety Briefing: Time <u>9:40</u> People Present <u>KA (M.I)</u>					
Topics Discussed: <u>Bentovite powder - respiratory hazards</u>					
Logbook Book # <u>B041503</u> Page # <u>34</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____			
Update DITF?: Y / N					
Notes: <u>7:15 arrive at D-12 8:10 Crew arrives and mixes</u> <u>6 bag bentovite grout to top of well to surface 9:40 H's Start/Stop</u> <u>10:00 Move to 90-Day yard to de-con pipe & rig generate</u> <u>12.5 gallon 13:20 Head back to D-12 to mix cement grout for</u> <u>a footing for 10" steel surface casing 14:10 Grout from</u> <u>8' to 2.5' by 12 bags cement 14:45 Offsite</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/2000</u>		Date: <u>10-4-04</u>	
SWMU: <u>Well D-12</u>		Arrival Time: <u>07:00</u>	
Team Leader: <u>J. Bigelow</u>		Departure Time \ Destination: <u>18:00</u>	
Team Members: <u>J. Hamann, M. Byer</u>		Weather: <u>Partly Cloudy 40-75°F</u>	

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Well Installation <input checked="" type="checkbox"/> Well Development <u>D-12</u> <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A	
Health and Safety Briefing: Time <u>7:30</u> People Present <u>See above</u>	
Topics Discussed: <u>pinch points</u>	

Logbook Book # <u>TEA01</u> Page # <u>32-33</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
---	---

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums <u>Purge</u> Rinse / Soil / Other #ES(s) <u>PARSN20427801</u> Closed? <u>(Y)N</u> Current Location: <u>On-site</u> Update DITF?: <u>Y(N)</u>
Notes: <u>07:00 Arrived on site, vestia arrived, MP arrived</u> <u>08:00 Starter surging + bailing, 4" bailer getting stuck,</u> <u>borrowed 3" bailer from Layre Christensen</u> <u>10:30 Starter bailing w/ 3" bailer</u> <u>13:33 Starter pumping</u> <u>14:30 Backflushing SX</u> <u>15:15 Backflushing SX</u> <u>Pumped 662 gallons, w.L. at 339.80 at end</u> <u>Locked up MP Inker for move to 90-dry yard tomorrow</u> <u>Visitors Carl Cole 2x 8-8:15, 11:00-16:15</u>

HEALTH AND SAFETY BRIEFING

Date: 9 / 2 / 04

Time: 8:30

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. Thomas K...	11.
2. Nathan Salazar	12.
3. Mark A. ...	13.
4. Mark A. ...	14.
5. Richard Jirka	15.
6. Jay ...	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Grass Fires - Present and Known Danger
2. Cyclone Punch Point
3. Inhalation Hazards
4. Proper application of PPE for this COC
5.
6.
7.
8.
9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9/3/04

Time: 7:00

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>W. H. H. H. H.</u>	11.
2. <u>Thomas D.</u>	12.
3. <u>Walter Salazar</u>	13.
4. <u>W. H. H. H. H.</u>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Rodgers Road has surprising amount of Traffic
2. Be very alert backing out of site onto road
- 3.
4. Most drilling injuries occur to hands and
5. fingers - be very aware when adding casing sections
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 5 / 04

Time: 8:15

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

WELL D-12

1. <i>[Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4. <i>[Signature]</i>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Because of the way the discharge hose
2. is attached to the cyclone, cuttings
3. exit at high speeds so always wear
4. safety glasses tight to face around cyclone
5. and avoid putting hand in discharge stream
6. without gloves. Also be cautious of clasts
7. of rock ricocheting out of wheel barrel
8. in random directions
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 7 / 04

Time: 7:15

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>Matthew Jones</u>	11.
2. <u>Mike A. Jones</u>	12.
3. <u>Thomas K...</u>	13.
4. <u>Nathan Salazar</u>	14.
5. <u>Cal E. ...</u>	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. We may encounter groundwater today. Once in
2. saturated cuttings wear nitrile gloves and
3. avoid hand to mouth contact due to potential
4. low level TCE
- 5.
6. We are also likely to move drums today
7. Be careful about pinching hand when performing
8. this activity
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 8 / 04

Time: 7:10

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>Walt Jones</u>	11.
2. <u>Thomas Ken</u>	12.
3. <u>Nathan Salazar</u>	13.
4. <u>Michael A. Winters</u>	14.
5. <u>Bill Thomas</u>	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. <u>Plugging and air buildup in the cyclone can result</u>
2. <u>in violent discharges. Be cautious when moving</u>
3. <u>cuttings or sampling around this area.</u>
4.
5.
6.
7.
8.
9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 9 / 04

Time: 7:10

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>Matt Lunn</u>	11.
2. <u>Mark A. Smith</u>	12.
3. <u>Thomas R.</u>	13.
4. <u>Altha Salazar</u>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Till Thomas had the following concerns at yesterday's
2. inspection
3. 1. No consumption of food or drink in the exclusion
4. zone
5. 2. Handle cuttings from cyclone with nitril
6. gloves
7. 3. Additional detail added to rig inspection
8. 4. Longer safety meetings when a new
9. person is onsite

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 10 / 04

Time: 7:15

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>Math Lawry</u>	11.
2. <u>Nathan Salazar</u>	12.
3. <u>Mark A. Williams</u>	13.
4. <u>Jelly Math</u>	14.
5. <u>Thomas R.</u>	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. We should be penetrating the saturated
2. zone today, wear proper PPE (Nitril Gloves
3. eye protection) and avoid hand to
4. mouth contact
- 5.
6. Be careful of pinch points and
7. back injury when handling drums
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 13 / 04

Time: 7:40

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>Walt Lewis</u>	11.
2. <u>John Smith</u>	12.
3. <u>[Signature]</u>	13.
4. <u>Thomas Lee</u>	14.
5. <u>Nathan Salazar</u>	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Rolling cascar is a good opportunity to injure ones back
2. Use proper lifting technique, bend at knees, lift
3. with leg, don't twist and lift, ask for help when
4. needed
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 14 / 04

Time: 9:40

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>Walt Lane</u>	11.
2. <u>Michael A. Smith</u>	12.
3. <u>THORNTON</u>	13.
4. <u>Walter Salazar</u>	14.
5. <u>Gill Thomas</u>	15.
6. <u>Jeff Mack</u>	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. We may be changing drill rigs over the
2. same hole today so there will be
3. much movement of large vehicles with
4. limited vision. Be aware at all times
5. keep the ground clean of extra tools
6. and watch out for each other
7. - Watch back procedures
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 9 / 15 / 04

Time: 10:50

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>[Signature]</u>	11.
2. <u>[Signature]</u>	12.
3. <u>[Signature]</u>	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. We will be moving drums ~~with~~ with drum
2. truck and will use the drum clamp. Keep
3. hands clear of clamp before operation
4. lifts. Communicate with each other when
5. operating this machine. Also never get feet
6. under a suspended drum
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

Layne Christensen Company Job Site Safety

Date 9/2/04

Site: TEAD Phase II RFI @ SWMU-58 (D-12)

Client: USACE

Rig/Crew: Tom Kero / Mike Winnell / Nate Salazar

Observers: Matt Ivers / Carl Cole Kleinfelder / USACE

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DAILY DRILL RIG INSPECTION CHECKLIST

D-12

Employee Name: Matt Ivers / Tom Kern Date: 9/7/04

Type/Make/Model of Equipment: AP 1000 Becker Hammer License Plate Number: _____

Project Location: TEAD Phase II RFI D-12

CHECKLIST	YES	NO	N/A
Are adequate and serviceable fire extinguishers provided?	✓		
Is a first aid kit provided?	✓		
Are all wire rope cables in good condition?	✓		
Are wire rope, sockets, splices, thimbles, and clips adequate and properly applied?	✓		
Are hooks, safety nooks, shackles, rings, etc. in good condition?	✓		
Are drums for load lines equipped with at least one positive holding device, applied directly to the motor shaft or some part of the train gear?	✓		
Are operating levers equipped with latch or other devices to prevent accidental starting?	✓		
Are belts, gears, shafts, electrical contacts, etc. adequately guarded?	✓		
Are tires in good condition and properly inflated?			✓
Is acceptable spark arrestor installed and working?			✓
Are required pressure, temperature, and relief gauges and valves installed and operable?	✓		
Are hydraulic jacks in good condition and operable?	✓		
Is "kill" or "deadman" switch operational?	✓		
Are adequate headlights, tail-lights, and turn signals provided and in proper operating condition?			✓
Are brakes in proper operating condition?			✓
Do windshields have wipers in proper operating condition?			✓
Are rear view mirrors provided?			✓
Are reverse signal alarms on equipment?			✓
Are all glasses in operator's compartment safety glasses and in good repair?	✓		
Are seat belts provided?			✓
Is recommended preventative maintenance being followed?	✓		

-see below

ADDITIONAL REMARKS: Fire extinguisher on truck needs charging
2 others are ok
Thomas Kern
Employee Signature

Layne Christensen Company Job Site Safety

D-12

Date: 9/8/04	Site: TEAD Phase II RFI @ SUMU 58	Client: USACE
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Rig/Crew: Tom Kern, Nate Salazar, Mike Winmill

Observers: Matt Ivins, Carl Cole, Jill Thomas

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Five extinguisher on rig has been recharged since yesterday

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Radiator fluid spilled yesterday landed on plastic sheeting under rig and was contained

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date: 9/9/04	Site: TEAD Phase II RFI @ SWMU 58	Client: USACE
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Rig/Crew: Tom Kern, Nate Salazar, Mike Winnell

Observers: Matt Ivers

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Jill Thomas added the following items yesterday

Tires ✓
Horns ✓
Lights ✓

Batteries ✓
Brakes ✓
Wipers ✓

Fluid Levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date

9/10/04

Site:

TEAD Phase II RFI
PSWNU 58

Client:

USACE

Rig/Crew:

Tom Kern, Nate Salazar, Mike Wynn (All field vehicles)

Observers:

Matt Ivers, Jeff Byelow

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat

☒☐☐

Safety Glasses

☒☐☐

Lifting Belt

☒☐☐

Training Certificates

☒☐☐

Gloves

☒☐☐

Hearing Protection

☒☐☐

Safety Shoes

☒☐☐

Proper Clothing

☒☐☐

Layne Safety Practice Manual

☒☐☐

Dust masks/Level C respirators

☒☐☐DOT physical card, CDL and logbooks
present and up to date?☒☐☐Emergency numbers/HASP present
and posted?☒☐☐

Comments:

Site Set-up and Safety

Hole openings covered or tied off?

☒☐☐

Timbers and set-up jacks stable?

☒☐☐Anchor guy lines secure, evenly
tensioned and flagged?☒☐☐Mud or circulation pits barricaded
or fenced?☒☐☐Excavation permit (CA) and shoring
considerations?☒☐☐Traveling blocks, widow makers and
elevators inspected?☒☐☐

Site clean and organized? Footing?

☒☐☐

Bulk fuel stores lined and grounded?

☒☐☐

Pipe blocked and sloped from work area?

☒☐☐

Correct monitoring equipment present?

☒☐☐

Overhead and underground lines identified?

☒☐☐

Chemicals stored away from fuel and protected?

☒☐☐

Material Safety Data Sheets present?

☒☐☐

Warning signs/Exclusion zone posted?

☒☐☐

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?

☒☐☐

All mast wiring in conduits?

☒☐☐Vehicle pretrip inspection performed and
documented?☒☐☐Seat belts available and used on all
equipment?☒☐☐

Fire extinguisher present and charged?

☒☐☐

First aid/BBP kit present and stocked?

☒☐☐

Danger points color coded?

☒☐☐

Controls identified?

☒☐☐

Side guardrails on platform rigs?

☒☐☐

Ropes and chains in good condition?

☒☐☐

Belts and rotating shafts guarded?

☒☐☐

All hooks have safety latches?

☒☐☐

Cables in good shape, clamps installed properly?

☒☐☐

Pressure hoses safety chained at connections?

☒☐☐

Good housekeeping in vehicle cabs?

☒☐☐

Spill control materials present?

☒☐☐

Layne Christensen Company Job Site Safety

D-12

Date

9/13/04

Site:

TEAD Phase II RFI @ SUMU 58

Client:

USACE

Rig/Crew:

Tom Kern, Nate Schar, Mike Winnell

Observers:

Matt Luers, Jeff Bigelow

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date 9/14/04

Site: TEAD Phase II RFI@SWMU-SB

Client: USACE

Rig/Crew: Tom Kern, Nate Salazar, Mike Wewall

Observers: Matt Ivers

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, COL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date 9/15/04

Site: TEAD Phase II RFI @ SWMU 58

Client: USACE

Rig/Crew: Tom Kern, Mike Winmill

Observers: Matt Ivers

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat

☒☐☐

Safety Glasses

☒☐☐

Lifting Belt

☒☐☐

Training Certificates

☒☐☐

Gloves

☒☐☐

Hearing Protection

☒☐☐

Safety Shoes

☒☐☐

Proper Clothing

☒☐☐

Layne Safety Practice Manual

☐☐☒

Dust masks/Level C respirators

☐☐☒

DOT physical card, CDL and logbooks present and up to date?

☐☐☒

Emergency numbers/HASP present and posted?

☒☐☐

Comments:

Site Set-up and Safety

Hole openings covered or tied off?

☐☐☒

Timbers and set-up jacks stable?

☒☐☐

Anchor guy lines secure, evenly tensioned and flagged?

☐☐☒

Mud or circulation pits barricaded or fenced?

☐☐☒

Excavation permit (CA) and shoring considerations?

☐☐☒

Traveling blocks, widow makers and elevators inspected?

☐☐☒

Site clean and organized? Footing?

☒☐☐

Bulk fuel stores lined and grounded?

☐☐☒

Pipe blocked and sloped from work area?

☒☐☐

Correct monitoring equipment present?

☒☐☐

Overhead and underground lines identified?

☒☐☐

Chemicals stored away from fuel and protected?

☒☐☐

Material Safety Data Sheets present?

☒☐☐

Warning signs/Exclusion zone posted?

☒☐☐

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?

☒☐☐

All mast wiring in conduits?

☒☐☐

Vehicle pretrip inspection performed and documented?

☐☐☒

Seat belts available and used on all equipment?

☐☐☒

Fire extinguisher present and charged?

☒☐☐

First aid/BBP kit present and stocked?

☒☐☐

Danger points color coded?

☐☐☒

Controls identified?

☒☐☐

Side guardrails on platform rigs?

☒☐☐

Ropes and chains in good condition?

☒☐☐

Belts and rotating shafts guarded?

☒☐☐

All hooks have safety latches?

☒☐☐

Cables in good shape, clamps installed properly?

☒☐☐

Pressure hoses safety chained at connections?

☒☐☐

Good housekeeping in vehicle cabs?

☐☐☒

Spill control materials present?

☒☐☐

Layne Christensen Company Job Site Safety

D-12

Date 9/16/04

Site: TEAD Phase II RFI @ SWMU 58

Client: USACE

Rig/Crew: Tom Kero, Nate Salazar, Bob Hyndelman

Observers: Matt Ivers

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt (Harness)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Crew has brought a new Drill to site Schramm-ODEX
So I am inspecting this rig and its support vehicles

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date

9/17/04

Site:

T&AD Phase II RFL @ SWMU 58

Client:

USACE

Rig/Crew:

Tom Kern, Nate Salazar, Patrick McGannon

Observers:

Matt Ivers, Carl Cole

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat

☒ ☐ ☐

Safety Glasses

☒ ☐ ☐

Lifting Belt Harness

☒ ☐ ☐

Training Certificates

☒ ☐ ☐

Gloves

☒ ☐ ☐

Hearing Protection

☒ ☐ ☐

Safety Shoes

☒ ☐ ☐

Proper Clothing

☒ ☐ ☐

Layne Safety Practice Manual

☐ ☐ ☒

Dust masks/Level C respirators

☐ ☐ ☒

DOT physical card, CDL and logbooks present and up to date?

☐ ☐ ☒

Emergency numbers/HASP present and posted?

☒ ☐ ☒

Comments:

Becker Hammer AP1000 and auxiliary compressor Solair 900KH

Site Set-up and Safety

Hole openings covered or tied off?

☐ ☐ ☒

Timbers and set-up jacks stable?

☒ ☐ ☐

Anchor guy lines secure, evenly tensioned and flagged?

☐ ☐ ☒

Mud or circulation pits barricaded or fenced?

☐ ☐ ☒

Excavation permit (CA) and shoring considerations?

☐ ☐ ☒

Traveling blocks, widow makers and elevators inspected?

☐ ☐ ☒

Site clean and organized? Footing?

☒ ☐ ☐

Bulk fuel stores lined and grounded?

☐ ☐ ☒

Pipe blocked and sloped from work area?

☒ ☐ ☐

Correct monitoring equipment present?

☒ ☐ ☐

Overhead and underground lines identified?

☒ ☐ ☐

Chemicals stored away from fuel and protected?

☒ ☐ ☐

Material Safety Data Sheets present?

☒ ☐ ☐

Warning signs/Exclusion zone posted?

☒ ☐ ☐

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?

☒ ☐ ☐

All mast wiring in conduits?

☒ ☐ ☐

Vehicle pretrip inspection performed and documented?

☐ ☐ ☒

Seat belts available and used on all equipment?

☐ ☐ ☒

Fire extinguisher present and charged?

☒ ☐ ☐

First aid/BBP kit present and stocked?

☒ ☐ ☐

Danger points color coded?

☐ ☐ ☒

Controls identified?

☒ ☐ ☐

Side guardrails on platform rigs?

☐ ☐ ☒

Ropes and chains in good condition?

☒ ☐ ☐

Belts and rotating shafts guarded?

☒ ☐ ☐

All hooks have safety latches?

☒ ☐ ☐

Cables in good shape, clamps installed properly?

☒ ☐ ☐

Pressure hoses safety chained at connections?

☒ ☐ ☐

Good housekeeping in vehicle cabs?

☐ ☐ ☒

Spill control materials present?

☒ ☐ ☐

Layne Christensen Company Job Site Safety

D-12

Date 9/20/04

Site:

TEAD Phase II RFI @ SAKW 58

Client: USACE

Rig/Crew: Tom Kern, Nate Salazar, Dave Kyle

Observers: Matt Ivers

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belts Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Becker Hammer AP1000
Sulair 900KH compressor
Drum Truck (Yellow Forb)

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date 9/21/04

Site: TEAP Phase II RFI
@ SWW 58

Client: USACE

Rig/Crew: Tom Kern, Mike Salazar, Dave Kyle

Observers: Matt Ivers, Carl Cole

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
String Belt harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Schramm - ODEX rig ✓ Drown truck ✓
Solar 900XT compressor ✓
ODEX road truck ✓

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BSP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date 9/22/04

TEAD Phase II RFI
Site: @ SWMU 58

Client: USACE

Rig/Crew: Tom Kern, Nate Salazar, Dave Kyle

Observers: Matt Ivess, Carl Cole

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belts harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Shraumm ✓
Becker Hammer ✓
Shraumm Rob Truck ✓
Drom Truck ✓

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-12

Date 9/23/04

Site: Tead Phase II RFI @ SWMUS8

Client: VSACE

Rig/Crew: Tom Kern, Mate Salazar, Rick Smith

Observers: Matt Ivers Carl Cole

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat

☒☐☐

Safety Glasses

☒☐☐

Lifting Belt harness

☒☐☐

Training Certificates

☐☐☒

Gloves

☒☐☐

Hearing Protection

☒☐☐

Safety Shoes

☒☐☐

Proper Clothing

☒☐☐

Layne Safety Practice Manual

☐☐☒

Dust masks/Level C respirators

☐☐☒

DOT physical card, CDL and logbooks present and up to date?

☐☐☒

Emergency numbers/HASP present and posted?

☒☐☐

Comments:

Growl Plant ✓

Drown Truck ✓

Becker Hammer ✓

Site Set-up and Safety

Hole openings covered or tied off?

☐☐☒

Timbers and set-up jacks stable?

☒☐☐

Anchor guy lines secure, evenly tensioned and flagged?

☐☐☒

Mud or circulation pits barricaded or fenced?

☐☐☒

Excavation permit (CA) and shoring considerations?

☐☐☒

Traveling blocks, widow makers and elevators inspected?

☐☐☒

Site clean and organized? Footing?

☒☐☐

Bulk fuel stores lined and grounded?

☒☐☐

Pipe blocked and sloped from work area?

☒☐☐

Correct monitoring equipment present?

☒☐☐

Overhead and underground lines identified?

☒☐☐

Chemicals stored away from fuel and protected?

☒☐☐

Material Safety Data Sheets present?

☒☐☐

Warning signs/Exclusion zone posted?

☒☐☐

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?

☒☐☐

All mast wiring in conduits?

☒☐☐

Vehicle pretrip inspection performed and documented?

☐☐☒

Seat belts available and used on all equipment?

☐☐☒

Fire extinguisher present and charged?

☒☐☐

First aid/BBP kit present and stocked?

☒☐☐

Danger points color coded?

☐☐☒

Controls identified?

☒☐☐

Side guardrails on platform rigs?

☐☐☒

Ropes and chains in good condition?

☒☐☐

Belts and rotating shafts guarded?

☒☐☐

All hooks have safety latches?

☒☐☐

Cables in good shape, clamps installed properly?

☒☐☐

Pressure hoses safety chained at connections?

☒☐☐

Good housekeeping in vehicle cabs?

☐☐☒

Spill control materials present?

☒☐☐

Layne Christensen Company Job Site Safety

D-12

Date 9/24/04

Site: Teard Phase II RFI @ SMMU 58

Client: USACE

Rig/Crew: Tom Kern

Observers: Matt Kern

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Pipe Truck and Becker Hammer being De-Commed at
UID 90 Day yards ✓

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EQUIPMENT CALIBRATION LOG

Tooele Army Depot

Eqpt. Type	Serial No.	Date	Calibration Time	Calibration Gas	Calibration Gas Lot No.	Calibrated By:	Comments
Environmental Instruments	580U-60884 329	9/15/04	10:00	100 PPM ISOBUTYLENE	903169	Matt Ivers	101.6 ppm D-12
Photo Ionization		9/16/04	9:45				102.2 "
Detector		10/7/04	11:50				99.2 D-13
580 B		"	13:40				97.8 "
		10/11/04	8:00				97.6 "
		10/19/04	12:05				103.4 D-16
		10/20/04	8:35				101.2 "
		11/1/04	8:05				96.7 C-41
		11/2/04	12:55				97.6 "
		11/11/04	7:45				103.4 C-42
		11/19/04	9:25				104.3 C-44
		11/22/04	9:10				104.8 "
		12/7/04	12:45				101.2 C-43
		12/30/04	7:55				103.4 D-14
		1/4/05	8:50				104.2 "
		1/5/05	9:35				102.6 "
		1/6/05	11:25				103.4 "

Attachment 7-1

APPENDIX C

DRILLING LOG		DIVISION Sacramento	INSTALLATION Tooele Army Depot		SHEET 1 OF 10 SHEETS	
1. PROJECT TEAD Phase II RFI SUMU 58			10. SIZE AND TYPE OF BIT 10" open Face			
2. LOCATION (Coordinates or Station) 736777.995 N 1410018.176 E			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY LAUNE			12. MANUFACTURER'S DESIGNATION OF DRILL AP-1000 Becker Hammer			
4. HOLE NO. (As shown on drawing title and file number) D-12			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 75		UNDISTURBED NA	
5. NAME OF DRILLER Tom Kern, Nate Salazar, Mike Wornell			14. TOTAL NUMBER CORE BOXES NA			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 339.61(TOC) on 10/4/04			
7. THICKNESS OF OVERBURDEN 346 ft			16. DATE HOLE STARTED 9/2/04 COMPLETED 9/28/04			
8. DEPTH DRILLED INTO ROCK 24 ft			17. ELEVATION TOP OF ROCK CASING 4803.053FT			
9. TOTAL DEPTH OF HOLE 370 ft			18. TOTAL CORE RECOVERY FOR BORING NA %			
			19. SIGNATURE OF INSPECTOR M/Sgt [Signature] (G50949)			

ELEVATION TIME	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
9:30	2		Silty Sand (SM) 5-10% silt med sand, non plastic brown-dark brown 7.5YR 4/2 Moist	X	1	The Becker Hammer Method allows a maximum clast size of 6" to be delivered to the surface therefore quantities of cobble or boulders above 6" cannot be determined
	4		Partly Graded Sand w/ gravel (SW) ~20% Gravel, 80% silt Fine sand, subangular to subround gravel to 4 cm, brown-dark brown 7.5YR 4/2 Moist. Gravels are predominantly hard tan quartzite and grey to dark grey limestone, with traces of sandstone; rhyolite unless otherwise indicated	X	2	
9:39 9:47	10		Partly graded gravel w/ sand (GW) 10% silt 30% fine sand, S.A to S.R and gravel to 4 cm, DARK Brown 7.5YR 3/2, moist, All clasts and fines effervesce strongly in HCl except fresh faces of tan quartzite.	X	3	1.1 ft/min
	12		Silty Gravel w/ sand (GM) 60% Gravel 25% silt 15% fine sand, S.A to S.R clasts to 9cm pale brown 10YR 6/3, moist	X	4	
9:59 10:06	20		Silty Sand w/ gravel (SM) 60% sand, 20% gravel, 20% silt Gravel to 6 cm, fine to med sand, S.A to S.R. gravel, pale brown 10YR 6/3, moist	X	5	1.3 ft/min
	22		- as above	X	6	
10:20 10:27	30		Partly Graded Gravel with silt and sand (GW-GM) 55% gravel, 35% sand, 10% silt clasts to 7 cm, S.A to S.R., pale brown, 10 YR 6/3 Moist	X	7	0.7 ft/min
10:34 11:02	36		Silty Gravel w/ sand (GM) 55% gravel, 30% silt, 15% sand. Gravel to 7 cm, sand fine, SA to SR clasts. Grey- light grey 10YR 6/1, Dry	X	8	
11:10	40			X		0.7 ft/min

DRILLING LOG		DIVISION Sacto	INSTALLATION TEAD		SHEET 2 OF 10 SHEETS	
1. PROJECT Phase II RFI @ SWMU 58			10. SIZE AND TYPE OF BIT 10" OD OPEN FACE			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Layne Geoconstruction			12. MANUFACTURER'S DESIGNATION OF DRILL Drill Systems AP1000 Becker Hammer			
4. HOLE NO. (As shown on drawing title and file number) D-12			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 75		UNDISTURBED 0	
5. NAME OF DRILLER Tom Kern			14. TOTAL NUMBER CORE BOXES —			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 339.61 (TOC) on 10/4/04			
7. THICKNESS OF OVERBURDEN 346'			16. DATE HOLE 9/2/04		STARTED 9/28/04	
8. DEPTH DRILLED INTO ROCK 24'			17. ELEVATION TOP OF CASING 4803.053 FT			
9. TOTAL DEPTH OF HOLE 370'			18. TOTAL CORE RECOVERY FOR BORING — %			
			19. SIGNATURE OF INSPECTOR Matt (650949)			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
11:13	42		Poorly Graded Gravel w/silt and sand (GP-GM) 60-65% Gravel, 20-25% sand 10-15% silt, SA to SR, clasts to 13cm sand is very fine grained greyish brown 10YR 5/2 slightly moist. as above -	X	9	
	44			X	10	
	46			X	11	
	48		Silty Clay (CL), med plasticity no dilatancy, med dry strength mottled yellowish brown 10YR 6/5 and pale brown 10YR 6/5 moist as above -	X	12	2.0 ft/min
11:18 11:20	50			X	13	
	52			X	14	
	54			X	15	
	56		Poorly Graded Sand (SP) fine to med grain, pale brown 10YR 6/3 moist	X	16	
	58			X	17	
11:27 11:29	60		Poorly Graded Gravel with silt and sand (GP-GM) 50% Gravel, 40% sand, 10% silt Gravel SA to SR to 7cm fine to med sand, Brown 10YR 5/3 moist	X	18	1.4 ft/min
	62			X	19	
	64			X	20	
	66		Silty Clay (CL) as sample 11 above but with trace fine gravel	X	21	
11:34 11:35	68			X	22	
	70		Silty Sand w/gravel (SM) 20% gravel, SA to SR, sand is 20% silt with slight plasticity, pale brown 10YR 6/3 moist	X	23	1.4 ft/min
11:37 11:40	72			X	24	
	74			X	25	
	76			X	26	
	78			X	27	
11:47	80		Silty Gravel w/sand (GM) 70% gravel, 20% sand, 20% silty Gravel SA to SR to 16cm, Sand fine Grey to light Grey 10YR 6/1, Dry	X	28	1.4 ft/min

DRILLING LOG		DIVISION Sacto		INSTALLATION TEAD		SHEET 3 OF 10 SHEETS	
1. PROJECT Phase II RFI @ SWMU 58				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) D-12				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE 9/2/04		STARTED 9/28/04	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING %			
				19. SIGNATURE OF INSPECTOR Matti (650949)			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
11:52	82		Poorly Graded Gravel w/sand (GP) Cobbles to 20cm, sand fine to med (~20%) Caliche skin observed on largely limestone clasts, SA to SR, Greyish Brown 10YR 5/2		17		
	84						
	86				18		
	88						
12:05	90		Lean Clay (CL) high plasticity no dilatancy, high dry strength Pale brown 10YR 6/3, moist		19	0.8 ft/min	
12:35	92		Poorly Graded Sand w/gravel (SP) 40% gravel to 12cm 60% med sand, gravel is SA to SR limestone and quartzite light yellow brown 10YR 6/4, moist		20		
	94						
	96						
	98		Clayey Silt (ML), med plasticity, light yellow brown 10YR 6/4				
12:43	100		Poorly Graded gravel with SAND (GP) Trace cobble, 20% sand, 80% gravel to 5cm Greyish brown 10YR 5/2		21	1.3 ft/min	
9/2/04 8:15	102						
	104						
	106		as above		22		
	108						
8:25	110		as above		23	1.0 ft/min	
8:32	112					Boulder at 114'	
8:36	114					plugging	
8:55	116		Clayey Gravel (GC) 30% gravel 20% sand, gravel to 5cm, fine to med sand, SA to SR Gravel, highly plastic clay Matrix (60%), light reddish brown 5YR 6/3, moist		24	system plugging-need additional compressor	
9:02	118						
10:45	120					0.7 ft/min	
10:50							

DRILLING LOG		DIVISION Sacto		INSTALLATION TEAD		Hole No. D-12 SHEET 4 OF 10 SHEETS	
1. PROJECT Phase II RFI @ SWMU 58				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) D-12				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN				16. DATE HOLE 9/2/04		STARTED 9/28/04	
8. DEPTH DRILLED INTO ROCK				17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE				18. TOTAL CORE RECOVERY FOR BORING %			
				19. SIGNATURE OF INSPECTOR M. J. (G-50949)			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
13:20	120		- as above Clayey Gravel (GC)	X	25	New drilling with auxiliary compressor (Solair 900 K4)	
	122						
	124						
	126		Poorly Graded gravel w/sand, (GP) 60% gravel, 40% sand gravel five to 7cm, sand five to med, sa. to S.R. gravel, light yellow brown, 10YR 6/4 slightly moist	X	26		
13:28 13:34	130		- as above but gravel size increases	X	27	1.3 ft/min	
	132						
	134						
	136		- as above but 20% sand, light brown 7.5YR 6/4	X	28		
	138						
13:42 13:50	140		- as sample 26	X	29	1.3 ft/min	
	142						
	144						
	146		- as above but 30% cobble to 14cm 40% gravel, 30% sand	X	30		
	148						
14:01 14:05	150		- as above	X	31	0.9 ft/min	
	152						
	154						
	156		- as above	X	32		
	158						
14:15	160					1.0 ft/min	

Hole No. D-12

DRILLING LOG	DIVISION Sacto	INSTALLATION TEAD	SHEET 5 OF 10 SHEETS
1. PROJECT Phase II RFI @ SWMU 58		10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) D-12		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED 9/2/04 COMPLETED 9/28/04	
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING %	
		19. SIGNATURE OF INSPECTOR Watt	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
14:20	160		Poorly Graded Gravel w/sand (GP) 10% cobble to 10 cm, 50% gravel, 40% sand gravel fine to coarse, sand fine to med, SA to SE gravel light yellow brown 10YR 6/4	X	33	
	162			X		
	164			X		
	166		- as above	X	34	
	168			X		
14:26 14:29	170		- as above	X	35	1.7 ft/min
	172			X		
	174		Poorly Graded Gravel as above but with clay and sand (GP) 60% gravel, 40% clay and sand, fine to coarse gravel fine to coarse sand, SA to SE Pinkish Grey 5YR 7/2	X	36	
	176			X		
	178			X		
14:38 14:42	180		Poorly Graded gravel with Silty and sand (GP)-GM (10% S.H., 20% sand)	X	37	1.1 ft/min
	182			X		
	184			X		
	186		same as sample 33	X	38	
	188			X		
14:50 14:56	190		- as above	X	39	1.3 ft/min
	192			X		
15:00 15:20	194			X		Down to tighten bolts on head + fuel line
	196		- as above	X	40	
	198			X		
15:30	200			X		0.7 ft/min

DRILLING LOG		DIVISION Sacto	INSTALLATION TEAD		SHEET 6 OF 10 SHEETS	
1. PROJECT Phase II RFI @ SWMU 58			10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY			12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) D-12			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. DISTURBED UNDISTURBED	
5. NAME OF DRILLER			14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER			
7. THICKNESS OF OVERBURDEN			16. DATE HOLE STARTED 9/2/04 COMPLETED 9/28/04			
8. DEPTH DRILLED INTO ROCK			17. ELEVATION TOP OF HOLE			
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING %			
			19. SIGNATURE OF INSPECTOR M. J. Luna (GS0949)			

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
15:33	202		Poorly Grained Gravel (GP) ~ 70% cobbles, 20% gravel 10% sand, cobble to 15 cm+ gravel - mostly coarse, sand med to coarse, SA to SR clasts, light yellow brown 10YR 6/4	X	41	
15:40 15:57	204			X	42	- Down-fuel line cracked above farrel - crew repairing
	206			X		
	208		- cemented matrix	X		
16:12 9/7/04 @ 7:45	210		- as above (sample 41) Sand increases to 30% yellow brown 10YR 5/4	X	43	0.45 ft/min
	212			X		- slowest Penetration to date
	214			X		
	216		- as sample 41	X	44	
	218			X		
8:30 8:33	220		- Cobble decreases to 20% Gravel 70% sand 10%	X	45	0.22 ft/min
	222			X		
	224			X		
	226		- sand increases to 30% Gravel 50% Cobble 20%	X	46	
	228			X		
8:43 8:45	230		Silty Gravel (GM) with sand ~ 30% Cobble to 20 cm, 30% coarse gravel 20% silt 15% fine sand Gravel S.A to S.R quartzite and limestone (hard) clasts to 12 cm. Pale brown 10YR 6/3 moist limestone and fines effervesces strongly. Quartzite weakly	X	47	1.0 ft/min
8:51 9:50	232			X		@ 8:51 Rig Down fuel line break 9:50 Repair complete
	234			X		
	236			X	48	
	238			X		
10:19	240			X		0.28 ft/min

Hole No. D-12

DRILLING LOG	DIVISION Secto	INSTALLATION TEAD	SHEET 7 OF 10 SHEETS
1. PROJECT Phase II RFI @ SWMU 58		10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL	
4. HOLE NO. (As shown on drawing title and file number) D-12		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED 9/2/04 COMPLETED 9/28/04	
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING %	
		19. SIGNATURE OF INSPECTOR <i>[Signature]</i>	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
10:26	292		Silty Gravel w/ sand (GM) ~ 20% cobble to 15cm 50% gravel 20% silt 10%+ fine sand		49	
	244		Gravel S.A to S.R. glasts to 10cm. Pale Brown 10YR 6/3, moist		50	
	248					0.5 ft/min
10:45 9/8/04 7:30	250				51	Big Down - out of rods also radiator checked
	252					repairs complete
	254					
	256		Poorly Graded Gravel (GP) 10% cobble to 15cm 80% fine to coarse gravel 10% med grain sand. Gravel S.A to S.R		52	
	258		Quartzite and Limestone Dark Yellow Brown 10YR 4/4			0.5 ft/min
7:50 7:54	260		Moist		53	Crew replaces filter over hammer discharge
	262		Gravelly Clay (CL) ~ 10% fine gravel and some cobbles, clay is very stiff, Dark reddish brown 2.5YR 3/4			
	264		Moist to Very moist - perched H2O		54	
	266		Silty Gravel, (GM) 20% cobble to 15cm 60% gravel 15% silt 5% sand			0.4 ft/min
8:22 8:24	270		Cobble & Gravel SA to SR Pale Brown 10YR 6/3, Dry		55	
	272		increasing sand			
	274		Silty Clay (CI), stiff with ~10% gravel or cobble, med elasticity Dark reddish brown 2.5YR 3/4 moist to very moist - perched H2O		56	shut down - head too hot shut down - discharge hose breaks at head
9:02 9:14 10:38 15:00 16:30 7/35 9/4	278		limestone boulder Cemented Gravel - hard			0.027 ft/min
	280					

DRILLING LOG		DIVISION Sacto		INSTALLATION TEAD		Hole No. D-12		SHEET 8 OF 10 SHEETS	
1. PROJECT Phase II RFI @ SWMU 58				10. SIZE AND TYPE OF BIT					
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)					
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL					
4. HOLE NO. (As shown on drawing title and file number)				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED		UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES					
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED 9/02/04 COMPLETED 9/28/04			
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE					
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING %					
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR <i>[Signature]</i>					
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g			
9/9/04 @ 10:45 11:35 12:10 12:35 13:44	282		- cemented Gravel's - 60% gravel 40% cement, light gray 10YR 7/1 Dry - cement setting slightly less hard - END of cement 283.7'	X	59	- Fuel line breaks at 280' 8"			
13:20 13:44	284 286 288 290 292		- Poorly Graded Gravel (GP) Cobbles to 12 cm (30%) Fine to coarse gravel (60%) Silty fine sand (10%) Clasts are largely subrounded Brown 10YR 5/3, moist - Gravelly Clay (CL) ~20% Cobble & gravel to 9 cm Silty clay, med elasticity Reddish brown 2.5YR 5/4 Moist	X	58	0.09 ft/min			
14:05 14:23	294 296 298 300 302 304 306 308		- Silty Gravel (GM) 70% Cobble & gravel to 7 cm 30% silt, light gray 10YR 7/2 Dry - Poorly Graded Gravel as above sample 58 but 30% sand 40% gravel 30% cobble - as above	X	59 60 61 62	- head hot 0.47 ft/min - crew check lines and bolts on head			
14:45 14:59	310 312 314 316 318		- Fat Clay with gravel (CH) ~15% coarse gravel to Cobble (~12cm) Reddish Brown 2.5YR 5/4 Moist, high plasticity - Silty clay (CL) no gravel Med plastic Pink 5YR 8/4, moist - cemented clay as above - Gravelly Clay (CH) 20-40% fine to coarse gravel; cobble angular to subrounded, Reddish brown clay with pink streaks; mottling, moist to dry - possible fault gouge or turbidity current deposit, possible slickensides	X	63 64	0.45 ft/min			
15:38	320			X		0.24 ft/min			

DRILLING LOG		DIVISION Sacto	INSTALLATION TEAD	SHEET 9 OF 10 SHEETS	
1. PROJECT Phase II RFI @ SWMU 58			10. SIZE AND TYPE OF BIT 9"OD Open Face		
2. LOCATION (Coordinates or Station)			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Layne Geotechnical			12. MANUFACTURER'S DESIGNATION OF DRILL Becker Hammer AP1000		
4. HOLE NO. (As shown on drawing title and file number) D-12			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 72		UNDISTURBED 0
5. NAME OF DRILLER Tom Kern			14. TOTAL NUMBER CORE BOXES —		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 337.11 bgs on 10/4/04		
7. THICKNESS OF OVERBURDEN 344-346 feet			16. DATE HOLE STARTED 9/2/04 COMPLETED 9/26/04		
8. DEPTH DRILLED INTO ROCK 10-24 feet			17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE 340' bgs			18. TOTAL CORE RECOVERY FOR BORING — %		
			19. SIGNATURE OF INSPECTOR [Signature]		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
15:43 16:01 16:21 16:30 9/10/04 @ 9:00	322 324 326 328		as above Gravelly Clay (CH) but gravel increasing to 50% Clasts up to 15cm Clay is very high dry strength, no dilatancy, and High toughness and plasticity Dark Reddish Brown 2.5YR 3/4 moist	X	65	- head is shedding flange from fuel injector - shut Down
10:17 10:30	330 332		- as above	X	66	
12:10 12:43	334 336 338		- Cemented Gravel (GP) 60% cobble & gravel, mostly subrounded with hard matrix cement, appears impermeable, cement is light grey 5YR 7/1 Dry	X	67	@ 328 lifting cuttings Begin containing cutting on 9/13/04 during reentry 0.088 ft/min PID = 0.0 11.4 min/ft
13:09 13:15 14:15 14:30	340 342			X	68	Before Pulling 9" casing from 342' Groundwater is isolated below @ 336.2' bgs on 9/17/04
15:10 9/13/04 9:10/14:50 12:40/15:10 9/16/04 @ 10:25	344 346 348 350 352 354		- Quartzite boulders or weathered bedrock	X	69	Break - cool head eat lunch W.L = 337.11 on 10/4/04
	356		- Sandstone bedrock (SS), angular clasts to 3cm, med soft, weathered faces with iron oxide and manganese on surfaces occasionally, light yellow brown 10YR 6/4	X	70	0.080 ft/min = 0.0 12.5 min/ft
	358		- a sand zone observed at 352', moist to wet from 346-349, dry to 356	X	71	- cool head 0.044 ft/min 23 min/ft = 0.0 - switch to ODEX
10:50 9/21/04 10:05	360			X	72	0.4 ft/min = 0.6 2.5 min/ft

DRILLING LOG		DIVISION Sacto		INSTALLATION TEAD		Hole No. D-12 SHEET 18 OF 10 SHEETS	
1. PROJECT Phase II RFI @ SWMU 58				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
4. HOLE NO. (As shown on drawing title and file number) D-12				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED UNDISTURBED	
5. NAME OF DRILLER				14. TOTAL NUMBER CORE BOXES			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER		16. DATE HOLE STARTED 9/2/04 COMPLETED 9/28/04	
7. THICKNESS OF OVERBURDEN				17. ELEVATION TOP OF HOLE			
8. DEPTH DRILLED INTO ROCK				18. TOTAL CORE RECOVERY FOR BORING %			
9. TOTAL DEPTH OF HOLE				19. SIGNATURE OF INSPECTOR [Signature]			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	362		Sandstone bedrock (SS) angular to subangular clasts to 4 cm, red soft to soft, many weathered faces, iron oxide and/or manganese on many surfaces, light yellow brown 10YR 6/4, dry a highly fractured zone at 364-367.		73	PID = 0.2	
	364				74	0.0	
	366				75	7.0 mm/ft 0.0	
11:15	370	EOH				Hole discontinued due to fractured rock at 364-367 caving above bit in the uncased hole	



Integrated Subsurface Evaluation

311 Rock Avenue • Golden, CO 80401
PH 303.526.4432 • FAX 303.526.4426

email: PedlerRAS@aol.com • www.rasinc.org

D-12

COMPANY : US AEC
WELL : D-12
LOCATION/FIELD : TEAD
COUNTY : TOOELE
STATE : UTAH
SECTION :

OTHER SERVICES:

DATE : 12/07/04
DEPTH DRILLER :
LOG BOTTOM : 361.20
LOG TOP : 3.10

TOWNSHIP :

RANGE :

PERMANENT DATUM : TOSC

LOG MEASURED FROM: TOSC

DRL MEASURED FROM: NA

KB : NA

DF :

GL : na

CASING DIAMETER : 0
CASING TYPE : PVC
CASING THICKNESS: 0

LOGGING UNIT : 202
FIELD OFFICE :
RECORDED BY : whp

BIT SIZE : 6
MAGNETIC DECL : 0
MATRIX DENSITY : 2.71
NEUTRON MATRIX : Dolomite

BOREHOLE FLUID : 0
RM : 0
RM TEMPERATURE : 0
MATRIX DELTA T : 140

FILE : PROCESSED
TYPE : 9512A

THRESH: 4000

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



Date:09/23/2005
Project Number 48743.1B

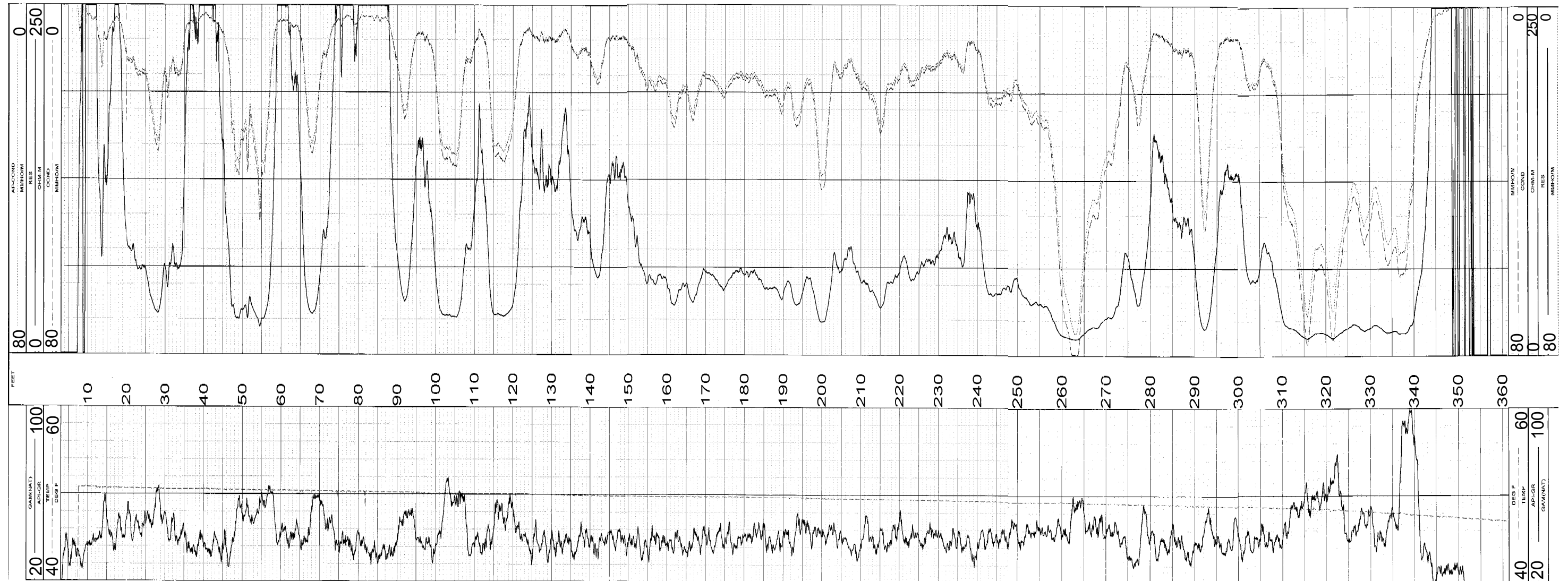
TEAD Phase II RFI

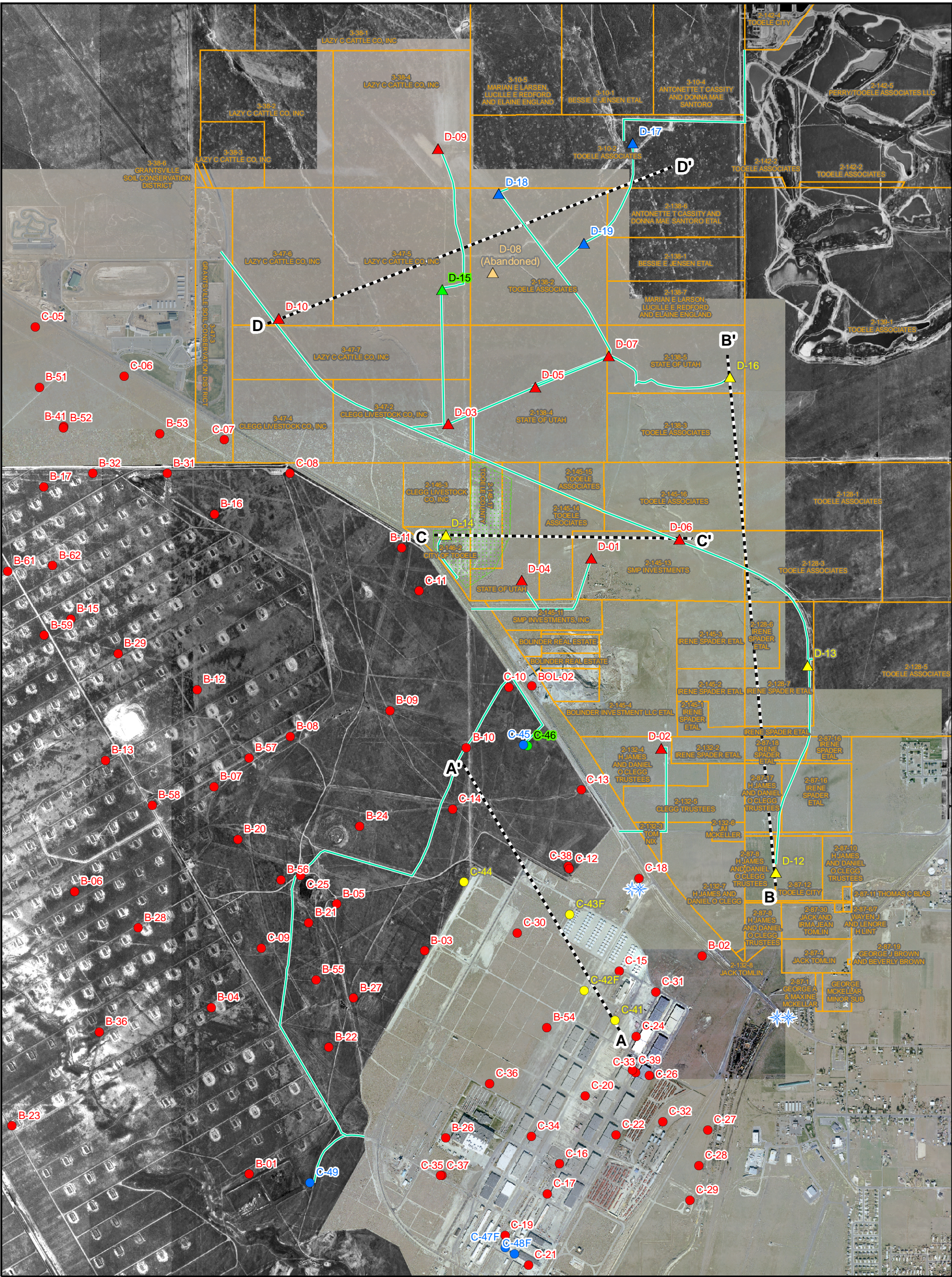
**WELL D-12
NATURAL GAMMA AND
INDUCTION ELECTRICAL LOGS**

SLC5Q232.ppt

PLATE

C-2a





Offsite Groundwater Monitoring Wells

- ▲ Phase I RFI Well
- ▲ Phase I RFI Well - Abandoned
- ▲ Phase II RFI - Installed Fall-Winter 2004
- ▲ Phase III RFI - Installed Summer 2005
- ▲ Proposed Phase II RFI Well

TEAD/UID Groundwater Monitoring Wells

- Existing Well
- Phase II RFI Well - Installed Fall-Winter 2004
- Phase II RFI Well - Installed Summer-Fall 2005
- Proposed Phase II RFI Well

LEGEND

- ★ Survey Benchmark
- Approximate Phase II RFI Well Access Route
- Cross Section Line
- ▨ Former Landfill
- ▭ Parcel Boundaries / Owners

SWMU 58
PHASE II RFI
TOOELE ARMY DEPOT
TOOELE, UTAH

0 900 1,800
Feet

↑

PLATE C-3

**GROUNDWATER
MONITORING WELL
LOCATION MAP**



311 Rock Avenue • Golden, CO 80401

PH 303.526.4432 • FAX 303.526.4426

Integrated Subsurface Evaluation email: PedlerRAS@aol.com • www.rasinc.org

D-12

COMPANY : US AEC
WELL : D-12
LOCATION/FIELD : TEAD
COUNTY : TOOELE
STATE : UTAH
SECTION :

OTHER SERVICES

TOWNSHIP :

RANGE :

DATE : 12/07/04
DEPTH DRILLER :
LOG BOTTOM : 361.20
LOG TOP : 3.10

PERMANENT DATUM : TOSC

LOG MEASURED FROM: TOSC

DRL MEASURED FROM: NA

GL : NA

DF :

GL : na

CASING DIAMETER : 0
CASING TYPE : PVC
CASING THICKNESS: 0

LOGGING UNIT : 202

FIELD OFFICE :

RECORDED BY : whp

LOG SIZE : 6
MAGNETIC DECL. : 0
MATRIX DENSITY : 2.71
NEUTRON MATRIX : Dolomite

BOREHOLE FLUID : 0

RM : 0

RM TEMPERATURE : 0

MATRIX DELTA T : 140

FILE : PROCESSED

TYPE : 9512A

THRESH: 4000

ADDITION OF BOREHOLE GEOLOGY (FROM GEOLOGIC BOREHOLE LOG BY MATTHEW R. JIRIK)
AND GEOPHYSICAL LOG INTERPRETATION BY R. JIRIK

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

		FEET	AP-COND	
GAM(NAT)			60	MMHO/M
API-GR		100	0	RES
TEMP			0	OHM-M
DEG F		60	60	COND
			60	MMHO/M

TEMP

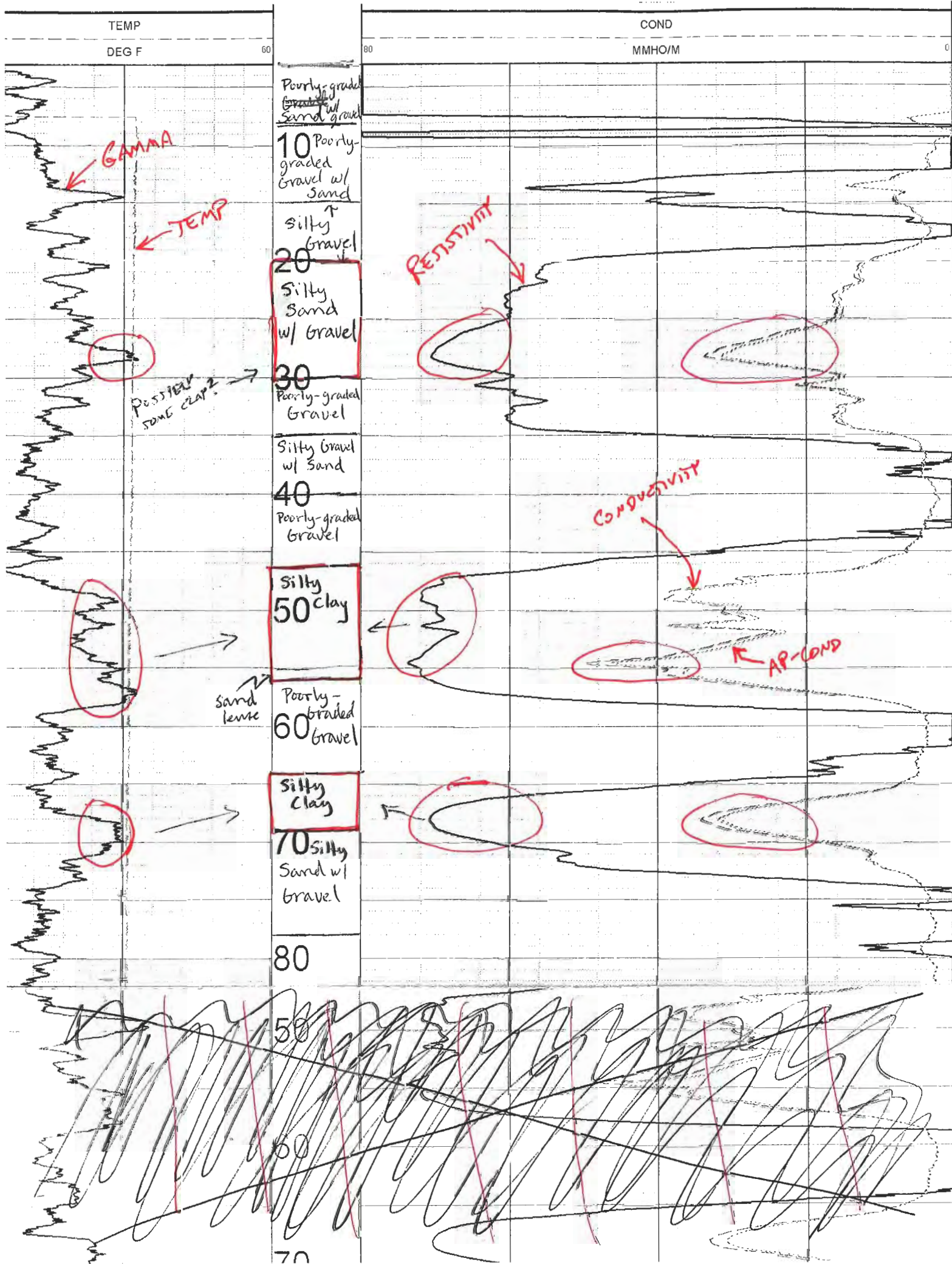
DEG F

60

COND

MMHO/M

0



70
Silty
Sand w/
Gravel

80 Silty
Gravel
w/ Sand

Poorly
Graded
Gravel

90 ~~lean~~ clay

Poorly
Graded
Sand

clayey

100 silt

Poorly
Graded
Gravel

110
~~Boulder-~~

~~clayey~~
~~gravel~~

120
gravelly
clay

130

Poorly
Graded
gravel

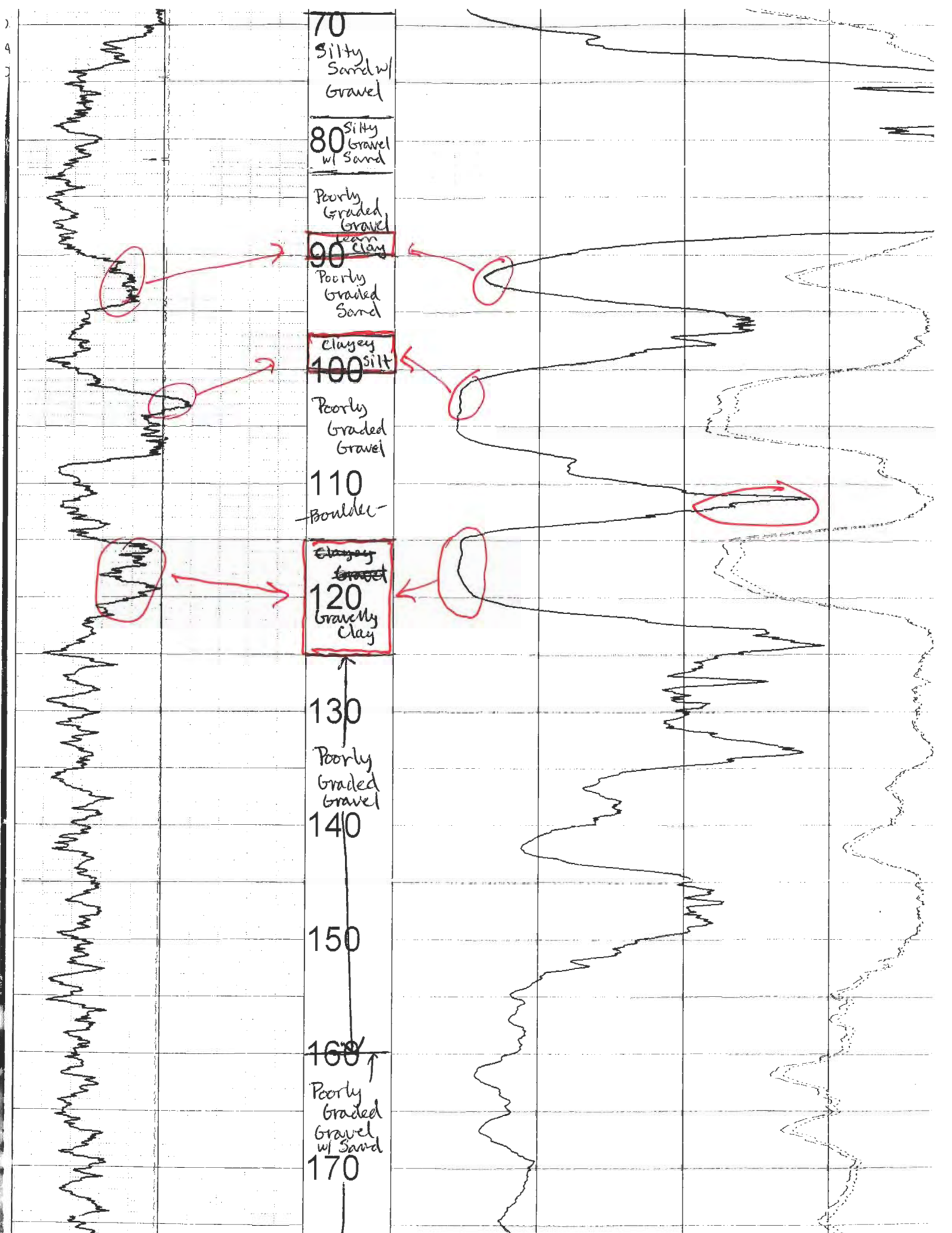
140

150

160

Poorly
Graded
Gravel
w/ Sand

170



180

Poorly
Graded
Gravel

190

w/ Silt
and
Sand

200

CEMENT

210

Poorly
Graded
Gravel

220

230

↑
Silty

240

Gravel
w/
Sand

250

↓

Poorly graded
Gravel

260

Gravelly
Clay

Silty
Gravel

270

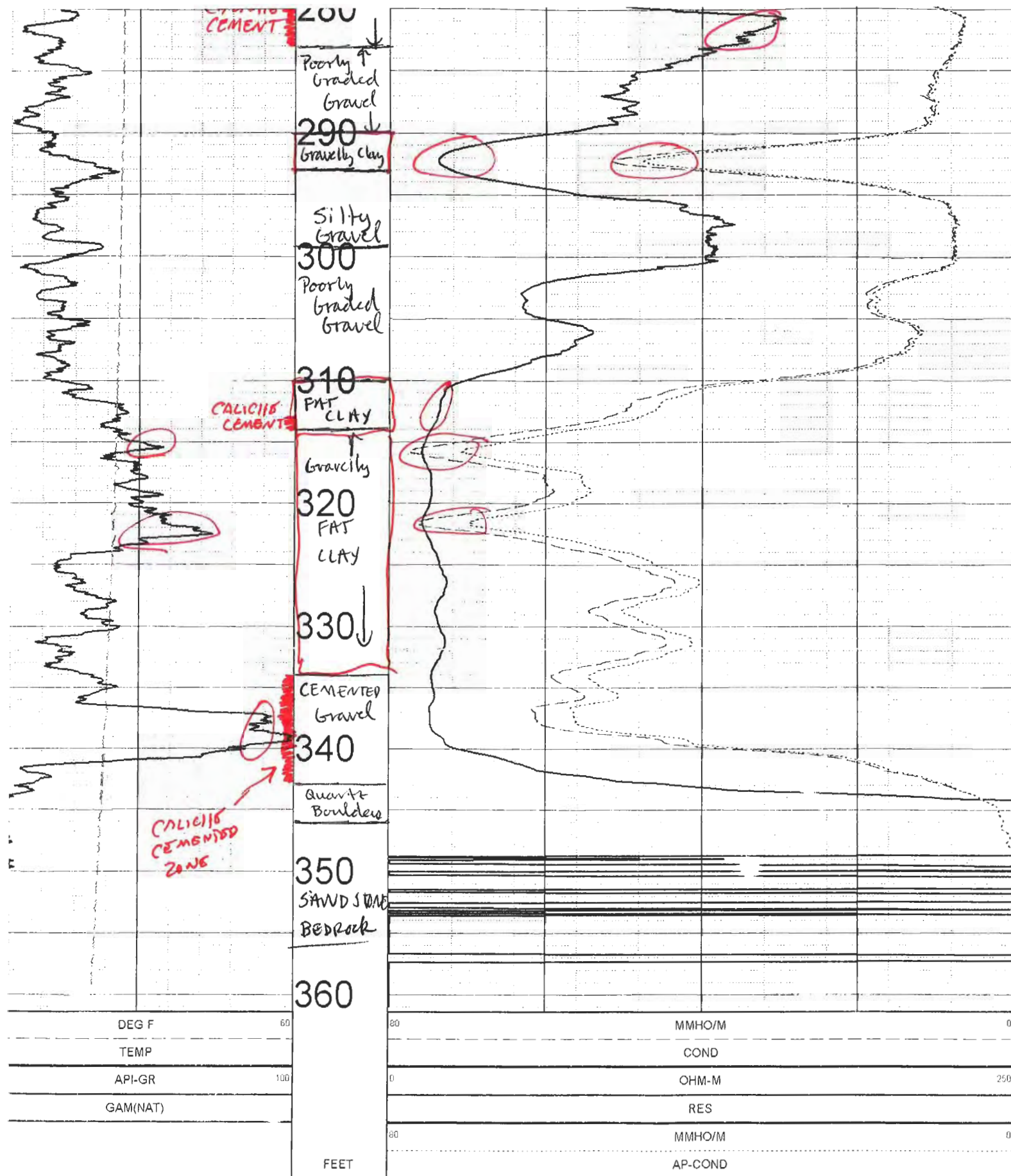
↓

Silty
Clay

w/ Gravel

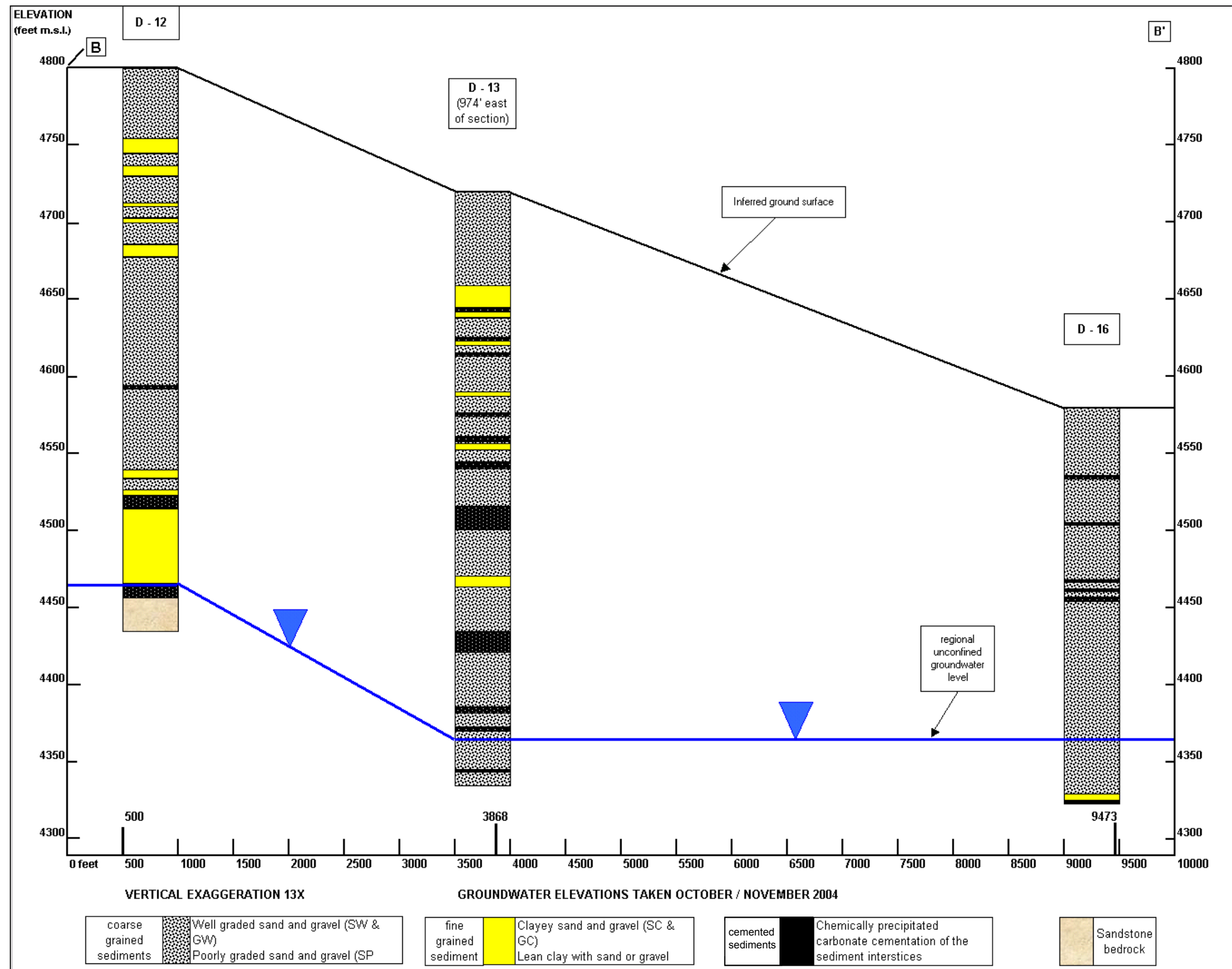
280

CEMENT



TOOL CALIBRATION D-12 12/07/04 13:50
 TOOL 9512A
 SERIAL NUMBER 993

DATE	TIME	SENSOR	STANDARD	RESPONSE
Jul16,04	01:01:14	GAM(NAT)	Default [API-GR]	Default [CPS]



APPENDIX D

CONTRACTOR Kleinfelder/Parsons	WELL NUMBER D - 12	PLATE D-1
---	-------------------------------------	----------------------------

TEAD Phase II RFI - SWMU 58

MONITORING WELL INSTALLATION DATA RECORD

PROJECT : Phase II RFI - SWMU 58	LOCATION : Tooele County, Utah
DRILLING SUBCONTRACTOR : Layne Geoconstruction	DRILLER : Tom Kearn
DRILLING METHOD AND EQUIPMENT: Becker Hammer-Drill Systems AP1000	HELPERS: Nate Salazar, Mike Winmill
WATER LEVEL : 339.61ft (TOC) on 10/4/04	START: 9/2/04 END: 9/28/04 GEOLOGIST: Matt Ivers, Kleinfelder

Well

4 in

10 in

DRAWING NOT TO SCALE

- 1- Ground elevation at well : 4800.561 feet (brass plug)
- 2- Measuring point elevation : 4803.053 feet (top of well casing)
- 3- Surface completion casing :

a) type / diameter (ID/ OD)	<u>Steel - 10 inch ID / 10 3/8 inch OD</u>
b) height above ground	<u>3 feet</u>
c) length below ground	<u>3 feet</u>
d) type / quantity of sealant	<u>Portland cement / 16 - 92.6 lb bags</u>
e) protective bollards	<u>4 - 4 inch steel concrete filled (4' ags - 2' bgs)</u>
- 4- Well casing :

a) type / diameter (ID/ OD)	<u>Schedule 40 PVC / 4 inch</u>
b) height above ground	<u>2.49 feet</u>
c) length below ground	<u>365 feet</u>
d) type / quantity of sealant	<u>see # 8</u>
e) well centralizers	<u>none</u>
- 5- Well screen :

a) type / diameter (ID/ OD)	<u>Schedule 40 PVC / 4 inch</u>
b) slot size	<u>.010 inch</u>
c) lengths	<u>2 - 10 foot sections (345 to 365 feet bgs)</u>
- 6- Well screen filter pack :

a) type	<u>#16 / 40 Colorado Silica Sand</u>
b) quantity used	<u>16 - 50 lb bags</u>
c) method of placement	<u>poured from surface</u>
d) length	<u>339 to 370 feet bgs</u>
- 7- Bentonite seal :

a) type/quantity	<u>Cetco coated pellets / 6 - 5 gallon buckets</u>
b) length	<u>334 to 339 feet bgs</u>
- 8- Grout :

a) grout mix used per batch	<u>28 gal water to 2 - 50 lb bags bentonite grout</u>
b) method of placement	<u>pumped from surface</u>
c) qty of well casing grout	<u>102 lb bags (approx 1428 gallons)</u>

Well development :

a) method	<u>bail and swab / pump and back-flush</u>
b) time	<u>2 hour 23 minutes / 2 hours 58 minutes</u>

Pumping tests :

a) drawdown / time	<u>not recorded</u>
b) pumping rate	<u>4.09 to 4.47 gpm</u>

Legal Description – Monitor Well No. D-12

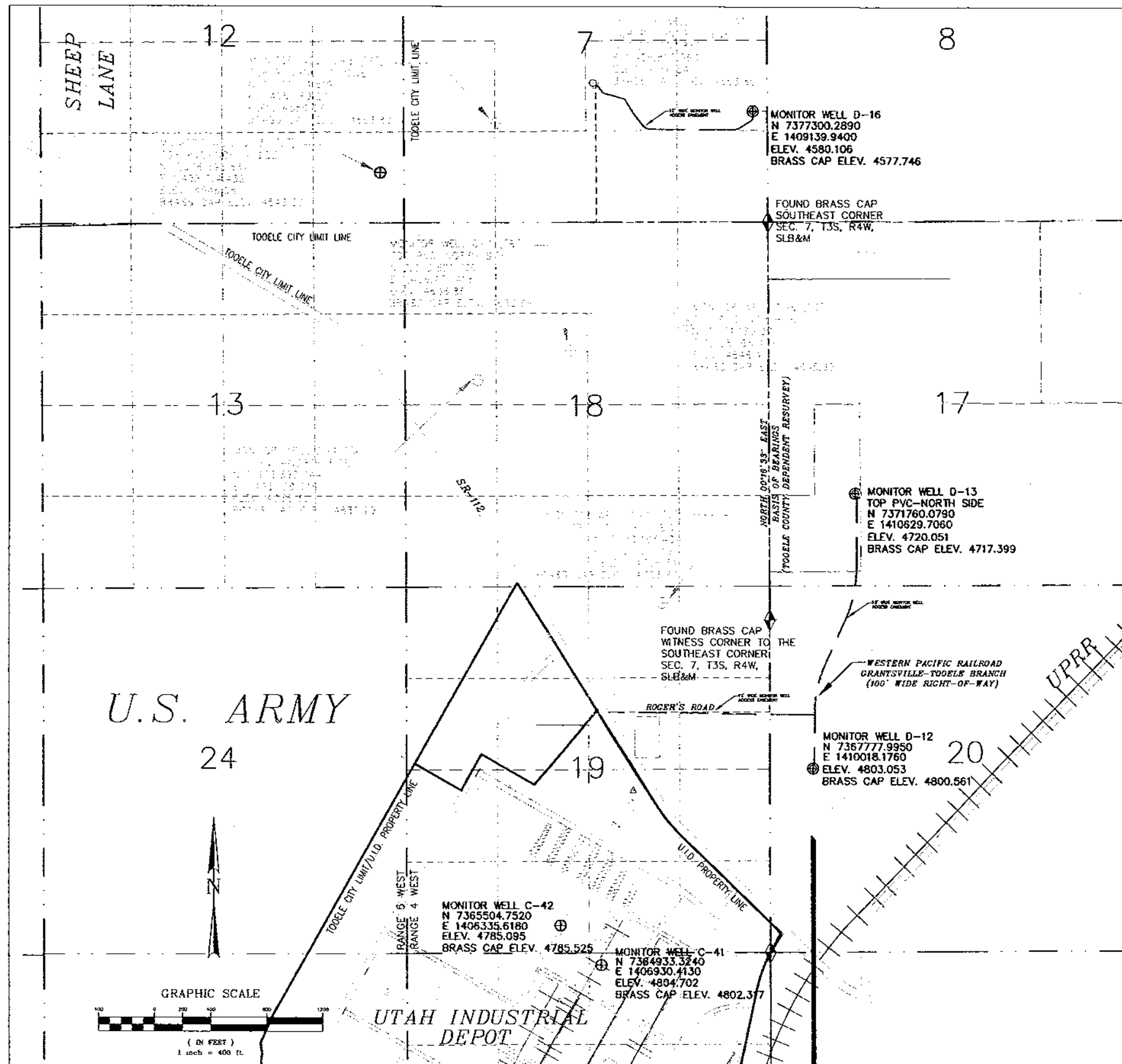
A fifty foot diameter well easement for the purpose of accessing monitor well No. D-12, the center point of which is described as follows:

Commencing at the West Quarter corner of Section 20, Township 3 South, Range 4 West, Salt Lake Base and Meridian; and running thence North 00°05'27" West along the west line of the Northwest Quarter of said Section 20, a distance of 12.32 feet; thence North 89°54'33" East, a distance of 627.80 feet to the center point of a PVC pipe marking Monitor Well No. D-12, and point of terminus.

Well No. D-12 – Access Easement Legal Description

A twelve (12) foot wide access easement for the purpose of accessing Monitor Well No. D-12 from a public highway, the centerline of which is described as follows:

Beginning at a point which lies South 00°00'42" East along the east line of Section 19, Township 3 South, Range 4 West, Salt Lake Base and Meridian, a distance of 1,332.55 feet, and South 89°54'33" West, a distance of 2,346.78 feet from a witness corner to the Northeast corner of said Section 19, said point being on the easterly right-of-way line of State Route 112; and running thence over and across a prescriptive right-of-way for Roger's Road the following three (3) courses: South 89°11'52" East, a distance of 1,865.02 feet; thence South 89°49'44" East, a distance of 766.25 feet; thence South 89°13'27" East, a distance of 371.00 feet to a point on a dirt road within the 100' wide right-of-way of the Western Pacific Railroad-Grantsville Tooele Branch, on file with the Tooele County Recorder's Office, dated May, 1917; thence South 00°41'04" West along said dirt road, a distance of 727.17 feet to a point on the perimeter of the fifty foot Monitor Well easement and point of terminus.



UTAH INDUSTRIAL DEPOT MONITOR WELL AND ACCESS EASEMENT LEGAL DESCRIPTIONS

LEGAL DESCRIPTION - MONITOR WELL NO. C-41
COMMENCING AT THE NORTH QUARTER CORNER OF SECTION 30, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE: THENCE NORTH 89°40'33" EAST ALONG THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 30, A DISTANCE OF 177.34 FEET; THENCE SOUTH 00°19'27" EAST, A DISTANCE OF 174.07 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. C-41, AND POINT OF TERMINUS.

LEGAL DESCRIPTION - MONITOR WELL NO. C-42
COMMENCING AT THE SOUTH QUARTER CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE SOUTH 89°43'47" WEST ALONG THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 19, A DISTANCE OF 414.76 FEET; THENCE NORTH 00°16'13" WEST, A DISTANCE OF 400.46 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. C-42, AND POINT OF TERMINUS.

LEGAL DESCRIPTION - MONITOR WELL NO. D-12
A FIFTY FOOT DIAMETER WELL EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-12, THE CENTER POINT OF WHICH IS DESCRIBED AS FOLLOWS:
COMMENCING AT THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 00°05'27" WEST ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 20, A DISTANCE OF 12.32 FEET; THENCE NORTH 89°54'33" EAST, A DISTANCE OF 627.80 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. D-12, AND POINT OF TERMINUS.

WELL NO. D-12 - ACCESS EASEMENT LEGAL DESCRIPTION
A TWELVE (12) FOOT WIDE ACCESS EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-12 FROM A PUBLIC HIGHWAY, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT WHICH LIES SOUTH 00°00'42" EAST ALONG THE EAST LINE OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, A DISTANCE OF 1,332.55 FEET, AND SOUTH 89°54'33" WEST, A DISTANCE OF 2,346.78 FEET FROM A WITNESS CORNER TO THE NORTHEAST CORNER OF SAID SECTION 19, SAID POINT BEING ON THE EASTERLY RIGHT-OF-WAY LINE OF STATE ROUTE 112; AND RUNNING THENCE OVER AND ACROSS A PRESCRIPTIVE RIGHT-OF-WAY FOR ROGER'S ROAD THE FOLLOWING THREE (3) COURSES: SOUTH 89°11'52" EAST, A DISTANCE OF 1,865.02 FEET; THENCE SOUTH 89°49'44" EAST, A DISTANCE OF 766.25 FEET; THENCE SOUTH 89°13'27" EAST, A DISTANCE OF 371.00 FEET TO A POINT ON A DIRT ROAD WITHIN THE 100' WIDE RIGHT-OF-WAY OF THE WESTERN PACIFIC RAILROAD-GRANTSVILLE TOOELE BRANCH, ON FILE WITH THE TOOELE COUNTY RECORDER'S OFFICE, DATED MAY, 1917; THENCE SOUTH 00°41'04" WEST ALONG SAID DIRT ROAD, A DISTANCE OF 727.17 FEET TO A POINT ON THE PERIMETER OF THE FIFTY FOOT MONITOR WELL EASEMENT AND POINT OF TERMINUS.

LEGAL DESCRIPTION - MONITOR WELL NO. D-13
A FIFTY FOOT DIAMETER WELL EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-13, THE CENTER POINT OF WHICH IS DESCRIBED AS FOLLOWS:
COMMENCING AT THE SOUTHWEST CORNER OF SECTION 17, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 00°16'57" WEST ALONG THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION, A DISTANCE OF 1,341.40 FEET; THENCE NORTH 89°43'03" EAST, A DISTANCE OF 1,250.17 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. D-13, AND POINT OF TERMINUS.

WELL NO. D-13 - ACCESS EASEMENT LEGAL DESCRIPTION
A TWELVE (12) FOOT WIDE ACCESS EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-13 FROM A PUBLIC HIGHWAY, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT WHICH LIES SOUTH 00°00'42" EAST ALONG THE EAST LINE OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, A DISTANCE OF 1,332.55 FEET, AND SOUTH 89°54'33" WEST, A DISTANCE OF 2,346.78 FEET FROM A WITNESS CORNER TO THE NORTHEAST CORNER OF SAID SECTION 19, SAID POINT BEING ON THE EASTERLY RIGHT-OF-WAY LINE OF STATE ROUTE 112; AND RUNNING THENCE OVER AND ACROSS A PRESCRIPTIVE RIGHT-OF-WAY FOR ROGER'S ROAD THE FOLLOWING THREE (3) COURSES: SOUTH 89°11'52" EAST, A DISTANCE OF 1,865.02 FEET; THENCE SOUTH 89°49'44" EAST, A DISTANCE OF 766.25 FEET; THENCE SOUTH 89°13'27" EAST, A DISTANCE OF 371.00 FEET TO A POINT ON A DIRT ROAD WITHIN THE 100' WIDE RIGHT-OF-WAY OF THE WESTERN PACIFIC RAILROAD-GRANTSVILLE TOOELE BRANCH, ON FILE WITH THE TOOELE COUNTY RECORDER'S OFFICE, DATED MAY, 1917; AND POINT OF CURVE OF A NON TANGENT CURVE TO THE RIGHT, OF WHICH THE RADIUS POINT LIES NORTH 88°31'02" EAST, A RADIAL DISTANCE OF 1,595.37 FEET; THENCE ALONG SAID DIRT ROAD THE FOLLOWING FOUR (4) COURSES: NORTHERLY ALONG THE ARC, THROUGH A CENTRAL ANGLE OF 26°12'16", A DISTANCE OF 729.85 FEET (CHORD BEARS NORTH 11°37'10" EAST, A DISTANCE OF 723.30 FEET); THENCE NORTH 24°11'52" EAST, A DISTANCE OF 713.62 FEET TO THE POINT OF CURVE OF A NON TANGENT CURVE TO THE LEFT, OF WHICH THE RADIUS POINT LIES NORTH 65°41'00" WEST, A RADIAL DISTANCE OF 1,902.79 FEET; THENCE NORTHERLY ALONG THE ARC, THROUGH A CENTRAL ANGLE OF 26°01'18", A DISTANCE OF 664.18 FEET (CHORD BEARS NORTH 11°18'21" EAST, A DISTANCE OF 656.77 FEET); THENCE NORTH 00°20'22" EAST, A DISTANCE OF 965.79 FEET TO A POINT ON THE PERIMETER OF THE FIFTY FOOT MONITOR WELL EASEMENT AND POINT OF TERMINUS.

LEGEND

- ⊕ MONITOR WELL
- ◆ SECTION MONUMENT
- PROPERTY LINES
- SECTION LINE
- FENCE LINE
- EDGE OF PAVEMENT
- TIE LINES

LEGAL DESCRIPTIONS (CONT'D)

LEGAL DESCRIPTION - MONITOR WELL NO. D-16
A FIFTY FOOT DIAMETER WELL EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-16, THE CENTER POINT OF WHICH IS DESCRIBED AS FOLLOWS:
COMMENCING AT THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 00°21'59" WEST ALONG THE EAST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 7, A DISTANCE OF 1,609.58 FEET; THENCE SOUTH 89°36'01" WEST, A DISTANCE OF 210.45 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. D-16, AND POINT OF TERMINUS.

WELL NO. D-16 - ACCESS EASEMENT LEGAL DESCRIPTION
A TWELVE (12) FOOT WIDE ACCESS EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-16 FROM MONITOR WELL NO. D-7, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT WHICH LIES 89°42'03" WEST ALONG THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, A DISTANCE OF 2,501.20 FEET; AND NORTH 00°17'59" WEST, A DISTANCE OF 1,995.93 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 7, SAID POINT BEING THE BEGINNING OF A CURVE TO THE RIGHT, OF WHICH THE RADIUS POINT LIES SOUTH 25°32'41" WEST, A RADIAL DISTANCE OF 150.00 FEET; AND RUNNING THENCE SOUTHEASTERLY ALONG THE ARC, THROUGH A CENTRAL ANGLE OF 25°51'49", A DISTANCE OF 67.71 FEET; THENCE SOUTH 35°59'57" EAST, A DISTANCE OF 76.49 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 37°52'57"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 33.06 FEET; THENCE SOUTH 73°52'54" EAST, A DISTANCE OF 289.60 FEET TO A POINT OF CURVE TO THE RIGHT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 42°17'33"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 36.91 FEET; THENCE SOUTH 31°35'21" EAST, A DISTANCE OF 215.71 FEET; THENCE SOUTH 37°38'09" EAST, A DISTANCE OF 227.09 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 150.00 FEET AND A CENTRAL ANGLE OF 52°23'01"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 137.14 FEET; THENCE NORTH 89°58'50" EAST, A DISTANCE OF 1,218.55 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 150.00 FEET AND A CENTRAL ANGLE OF 32°46'33"; THENCE EASTERLY ALONG THE ARC A DISTANCE OF 85.81 FEET; THENCE NORTH 57°12'17" EAST, A DISTANCE OF 201.46 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 52°33'46"; THENCE NORTHEASTERLY ALONG THE ARC A DISTANCE OF 45.87 FEET; THENCE NORTH 04°38'31" EAST, A DISTANCE OF 47.80 FEET TO A POINT ON THE PERIMETER OF THE FIFTY FOOT MONITOR WELL EASEMENT AND POINT OF TERMINUS.

THE BASIS OF BEARINGS FOR THIS SURVEY IS NORTH 00°16'33" EAST BETWEEN THE FOUND WITNESS CORNER MONUMENT FOR THE NORTHEAST CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, AND THE FOUND MONUMENT FOR THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN.

NARRATIVE OF BOUNDARY:

THE PURPOSE OF THIS SURVEY MAP IS TO SHOW THE LOCATIONS OF FIVE MONITOR WELLS AND ACCESS ROUTES TO THE THREE "D" SERIES WELLS. COORDINATES FOR THE WELL LOCATIONS HAVE BEEN FURNISHED IN THE NAD 27 STATE PLANE CENTRAL ZONE. ELEVATIONS ARE ON THE NGVD 29 SYSTEM.

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS NORTH 00°16'33" EAST BETWEEN THE FOUND WITNESS CORNER MONUMENT FOR THE NORTHEAST CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, AND THE FOUND MONUMENT FOR THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN.

SURVEYOR'S CERTIFICATE:

I, ROBERT O. BAKER DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN THE STATE OF UTAH, AND THAT I HOLD LICENSE NO. 172816. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE PARCEL OF LAND SHOWN ON THIS MAP. THAT THE SURVEY WAS CONDUCTED USING GENERALLY ACCEPTED SURVEYING PRACTICES. IT DOES NOT PURPORT TO SHOW ALL EASEMENTS OF RECORD, NOR IS IT PROOF OF OWNERSHIP.

ROBERT O. BAKER
UTAH REGISTERED LAND SURVEYOR
LICENSE NO. 172816

LOCATED IN PARTS OF SECTION 7, 17, 19, 20, and 30
TOWNSHIP 3 SOUTH, RANGE 4 WEST,
SALT LAKE BASE AND MERIDIAN,
TOOELE, UTAH.

SHEET:

1 OF 1

REVISIONS				
No.	DATE	BY	REVISION	

DRAWN BY: HU
DESIGN BY: HU
CHECKED BY: ROB
DATE: 12-10-05

CLIENT: PARSONS
DWG: MONITOR WELL-2004.dwg
JOB NO: PARSON 04
DRAWING IS REDUCED IF LESS THAN 22"x34"
DIMENSIONS AND NOTES TAKE PRECEDENCE OVER SCALE

Ward Engineering Group
Planning • Engineering • Surveying
Salt Lake City Office
1370 S. West Temple
Salt Lake City, Utah 84115
tel (801) 487-8040
fax (801) 487-8668

RECORD OF SURVEY

SUMMARY OF WELL SURVEY DATA **TEAD Phase II RFI Groundwater Monitoring Wells**

-----Elevations (ft above MSL)-----							
Well No.	Measuring Point	Brass Cap	ground Surface	Top of	Bottom of	Measuring Point	
				Well Screen	Well Screen	Northing	Easting
C-41	4804.70	4802.32	4801.67	4445.68	4425.68	7364933.324	1406930.413
C-42F	4785.09	4785.52	4785.27	4445.27	4425.27	7365504.752	1406335.618
C-43F	4754.87	4755.23	4755.21	4436.21	4416.21	7366968.52	1406061.58
C-44	4722.81	4720.44	4719.82	4439.82	4419.82	7367591.88	1404021.61
C-45							
D-12	4803.05	4800.56	4800.25	4455.25	4435.25	7367777.995	1410018.176
D-13	4720.05	4717.40	4720.47	4358.47	4338.47	7371760.079	1410629.706
D-14	4592.80	4590.93	4590.39	4335.39	4315.39	7374264.49	1403669.88
D-16	4580.11	4577.75	4577.20	4346.20	4326.20	7377300.289	1409139.940
D-17							
D-18							
D-19							

MSL: mean sea level

F for selected well identifiers designates flush-mount surface completion.

Coordinates for measuring point are US State plane 1983, Utah Central 4302, NAD 1983 (CONUS), GEOID96 (continental US)

All survey data generated by Ward Engineering of Salt Lake City, Utah

C-45, D-17, D-18, and D-19 have not been surveyed as of 7/21/05.

APPENDIX E



**TOOELE ARMY DEPOT
MONITORING WELL SAMPLING DATA**

Well ID: 0-12	Initial Depth to Water: 339.61
Sample ID:	Total Depth of Well: 365.56
Duplicate ID:	Well Diameter: 4"
Sample Depth:	(a) 1 Casing Volume:
Date: 10/4/04	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge:
Method of Sampling: Development Bailer	Method of Purging:

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
1030	*1st	Bailer	3	57.3	7.53	870	>1000					Orange Fine
1101	10th	Bailer	30	57.0	7.56	779	>1000					Orange Fine
1140	20th	Bailer	60	58.5	7.54	783	>1000					Orange Fine
1146	Surging	well	w/	Surge	Block							cloudy none
1221	25th	Bailer	75	60.3	7.53	789	>1000					cloudy none
1225	Surging	well	w/	Surge	Block							
1253	30th	Bailer	90	61.4	7.56	786	>1000					cloudy none
1:23												

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution	991	Standard	5.39
Instrument reading		7.0	10.0	Instrument reading	991	Instrument reading	5.39
		0741	0746		0745		0743

Notes: * Bailer holds 3 ggi



**TOOELE ARMY DEPOT
MONITORING WELL SAMPLING DATA**

Well ID: D-12	Initial Depth to Water: 339.61
Sample ID:	Total Depth of Well: 365.56
Duplicate ID:	Well Diameter: 4"
Sample Depth:	(a) 1 Casing Volume: 17 gal
Date: 10/4/04	(b) 1 Filter Pack Water Volume:
Sampled By: [Signature]	(a)+(b)x3= Minimum Volume to Purge: 51 gal
Method of Sampling: Development 4" Submersible	Method of Purging: Development 4" Submersible

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
1335	364	4.09	0									
1348	364	4.21	52	65.2	7.49	840	182					Cloudy
1401	364	4.21	104	63.3	7.45	829	56.8					none
1414	364	4.09	156	63.5	7.42	829	29.3					Cloudy
1427	364	4.21	208	62.5	7.46	818	19.5					none
1428	Pump off	Backfl	ushed	well	5+							Clear
1446	Parameters after Backfl	ush		63.1	7.48	837	151					none
1459	364	4.21	260	63.6	7.50	810	11.3					Cloudy
1512	364	4.09	312	62.7	7.45	825	6.98					none
1514	Pump off	Backflushed	well	5+								Clear
1528	Parameters after Backfl	ush		61.3	7.48	811	45.2					none
1541	364	4.47	364	60.0	7.47	795	7.13					Clear
												none

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution		Standard	
Instrument reading				Instrument reading		Instrument reading	

Notes:

5



TOOELE ARMY DEPOT MONITORING WELL SAMPLING DATA

Well ID: 0-12	Initial Depth to Water:
Sample ID:	Total Depth of Well:
Duplicate ID:	Well Diameter:
Sample Depth:	(a) 1 Casing Volume:
Date:	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge:
Method of Sampling:	Method of Purging:

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
1554	364	4.47	416	59.3	7.50	790	6.96					clear none
1607	364	4.47	468	59.5	7.45	793	6.37					clear none
1620	364	4.21	520	58.8	7.44	789	3.79					clear none
1633	364	4.21	572	58.5	7.47	785	3.83					clear none
2:52												

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution		Standard	
Instrument reading				Instrument reading		Instrument reading	

Notes:

Monday October 4, 2004

Weather: Clear, Cool ~60°

Wind: Breeze From South

0704 Arrive at O-12 and start setup

Jeff w/ Parsons on-site

SWL 339.61 TD 365.56'

0737 Calibrate equipment

0827 Attempted to bail well, Bailer is getting hung up at ~335 ft. Attached surge block and was able to reach bottom

0847 Attempting pump and piping installation

1004 Pump and piping installed to the bottom with no problems. Removed pump and piping and will bail and surge when 3" bailer arrives

1030 1st Bailer removed, Parameters Taken

1101 10th Bailer removed, Parameters Taken

1146 20th Bailer removed, Parameters Taken

1146 Surging well w/ surge block

1221 25th Bailer removed, Parameters Taken

1225 Surging well w/ surge block

1253 30th Bailer removed, Parameters Taken

only a minor amount of sand detected, Bailing and Surging Complete

1306 Lowering pump and piping

1332 Pump on, establishing flow

1335 Flow established at 4 gpm, Intake 364'

1428 Pump off, Backflushed well 5x

1514 Pump off, Backflushed well 5x

1633 Parameters stable and Turbidity below 5 NTU's, 572 gal pumped

1634 Pump off, Removing pump and piping

1717 Decon Equipment

1751 Leaving O-12 + GWTP

Monitoring Well D-12

Clear / Cold
~~30-50~~ 40-70°F
light wind
Dry

- 7:00 Arrived on-site
PSG arrived and setup
- 7:10 IMP starting to try to pull in tanker
truck, backing up traffic a bit
- 7:15 H+S meeting
- 7:20 water level measurements
339.61 ft bgs
- 7:40 IMP gets tanker truck in correct position
- 7:50 Calibrate conductivity + pH
- 8:00 Started Surging + bailing
-Bailer getting caught right at water
possibly swelling of bentonite moving the
+ well casing
Carl arrived 8:00
Left 8:30
- 9:00 Started lowering 4" pump into well to
see if it will go down the hole
- 9:30 4" pump fits down the well casing, pulling
it back out to surget bail the well
- 10:00 Pulled out 4" pump
- 10:30 Started pulling in 3" bailer from Locke
Christensen
- * Putting water into IMP Env tanker
PARSIN20427801

Continued on Page

Read and Understood By

Jeff Bigelow-Parsons 10/4/04

Signed

Date

Signed

Date

SUBJECT _____

11:30	Bail 30 gallons	
11:40	Bail 60 gallons	
11:45	Surging / Snubbing well	
12:00	Start bailing again	
12:15	Bailed 25 gallons	
12:25	Surging / Snubbing well	
12:30	Start bailing	
12:55	Bailed 90 gallons	
13:05	Lowering down pump	
13:33	Started pumping Max ~4 gallon per minute	
14:30	Backflushing SX	
14:45	Started pumping again	Carl Cole arrived
		16:00
		Left
15:15	Backflushing SX	16:15
15:30	Started pumping again	
16:33	Completed development of well 662 gallons removed w.c. at 339.50 ft TOC	
18:00	Locked up MP truck and left site	

Continued on Page _____

Read and Understood By _____

Jeff Bigelow-Pearson 10-4-04

Signed

Date

Signed

Date

D-12 NEW DEVELOPMENT

07:15 Arrived on-site

07:30 NPA + Larry arrived on-site

08:00 - Moved to UED 90-day yard

Tunker PARSIN20427801

08:30 - Pumped skimming water from following drums into tanker:

All PARSIN204

264-02

265-01

265-02

265-03

264-01

259-07

257-01

Approx. 70 gallons
total09:00 Empty tanker truck into 21,000-gallons
Baker tank

PARSIN20427801 → PARSIN20426801

09:30 Left 90-day yard

Continued on Page

Read and Understood By

Jeff Bagelow-Purcave 10-5-04

Signed

Date

Signed

Date

APPENDIX F

PDB MONITORING WELL SAMPLE LOG

(If multiple PDB samplers are deployed in a single well, use one sample log for EACH sampler)

PDB DEPLOYMENT

Project No.:		Well LOCID: 0-12	
Installation: TOOELE ARMY DEPOT		Log Book No.	Pages: 45
Contractor: Veolia Water		Sampler(s): 1	
PDB Deployment Date: 11/4/04 ; Time: 1215		Weather: Wind Dir: , at ~ mph; Air Temp: °F	
Well Labeled: Y/N [Y] Well Secure: Y/N [Y]		Comments:	
PID SN:		Well Headspace (PID mu)	Odor
Water Level Instrument: Solinst		Serial No.: Model 101	
SWL (ft BTOC): 339.60	Measured Well Depth (ft BTOC): 365.56	Reported Well Depth (ft BTOC):	
Sediment Thickness (ft):	Number of PDB Samplers deployed in well: 1	Tether Line Material: Teflon coated S-S.	
Type of Tether Weight: S. S.		Total Weight used (oz.):	
PDB bag length (inches): 16	PDB bag volume (ml):	Protective Mesh used: Y/N [Y]	
Source of Deionized Water used in Bag: Mount Olympus			

PDB RETRIEVAL AND SAMPLE

Well LOCID: 0-12		PDB Retrieval Date: 11/23/04 Retrieval Time: 1143	
Was ALL Deployed Equipment Retrieved (Line, Bags, Weights): Y/N [Y] if NO, Explain:			
Comments on Well and PDB Tether Assembly Condition:			
Weather: Wind Dir: , at ~ mph;		Precipitation:	Air Temperature: °F
Sample No. (FIELDSAMPID): 0-126W001		Sample Date: 11/23/04	Sample Time: 1147
Sampler (s): 1	Sample Beg. Depth (ft bgs):	Sample Ending Depth (ft bgs):	
Sample Collection Method: <input checked="" type="checkbox"/> Discharge Tube <input type="checkbox"/> Other (explain):			
Approximate Volume of Excess Sample Water After Sampling (ml): 0			
Excess Sample Water Placed in Drum: Y/N []		Drum Number:	
SWL Following Sampling (ft BTOC):		Sample Equipment Decon: Date: by:	
Decon Water Placed in Drum: Y/N []		Drum Number:	
Prepared by: Date: / /		Reviewed by: Date: / /	

Tuesday November 2, 2004
 weather: clear, Cool ~30°
 Wind: Breeze From South

- 0748 Arrive at O-16 and start Setup
 0752 Calibrated Equipment
 0814 Pump on, establishing flow
 0816 Flow established at 9 gpm, Intake 252
 0852 Parameters stable, Turbidity less than 5 NTU
 verified by Parsons
 0853 Pump off
 0900 Removing pump and piping
 0942 Decon Equipment
 1042 Leaving O-16 → Tanker
 1103 Arrive at Tanker and offloading
 ~350 gal of Purge water

November
 Thursday October^{sr} 4, 2004
 weather: clear, warm ~50°
 Wind: None

- 1215 Arrive at O-12 and installing 1 sampler
 (SWL 339.60) at 351.5
 1232 Arrive at O-13 and installing 2 samplers
 at 374, SWL 357
 1305 Arrive at O-16 and installing 1 sampler
 at 240, SWL 214.00

Tuesday November 23, 2004
Weather: Clear, mild ~40°
Wind: None

- 1130 Arrive at D-12 and preparing to Sample
1143 Removing Di PDB Sampler
1147 Sampled PDB sampler, 40ml w/HCL 3 vials
D-12 GWOOL
1159 Leaving D-12 → D-13
1205 Arrive at D-13 and preparing to Sample
1212 Removing PDB sampler
Sampled PDB sampler, 40ml w/HCL
1218 (3) vials Taken D-13 GWOOL
(1230) (3) vials Taken D-13 FDOOL
1235 Leaving D-13 → D-16
1300 Arrive at D-16 and preparing to Sample
1306 ~~5 vials Taken~~ Removing PDB Sampler
5 vials Taken From PDB Sampler 40ml w/HCL
1311 (3) D-16 GWOOL
1311 (1) D-16 MSOOL
1311 (1) D-16 SD OOL
1321 Leaving D-16 → Parsons Field office

ANALYTICAL QUALITY CONTROL SUMMARY

Samples were collected in accordance with the analytical and quality control specifications of the Final Phase II RCRA Facility Investigation SWMU-58 Work Plan (Parsons, 2003). Passive diffusion bag samplers were deployed in wells D-12, D-13, and D-16 on the same day. Samples (including field quality control samples) were collected on the 23rd of November 2004 and submitted to Ecology and Environment Analytical Service Center, a Utah and USACE-certified analytical laboratory.

Results were received and submitted to third party data review by Synectics. Data review included checks of the following data quality elements: Holding times, continuing calibration verification, method blanks, field blanks, laboratory control sample recovery, matrix spike and matrix spike duplicate recovery and precision, surrogate recovery, and field duplicate precision. No out of control events warranting qualification of the data were observed. Analytical and data validation reports are attached.



analytical services center

International Specialists in Environmental Analysis

4493 Walden Avenue, Lancaster, New York 14086

Tel: 716/685-8080, 800/327-6534 • Fax: 716/685-0852 • Email: asc@ene.com



December 13, 2004

Jan Barbas
Parsons Engineering Science, Inc.
406 W. South Jordan Pkwy.
Suite 300
South Jordan, Utah 840953944

RE: Tooele RCRA Phase II

Work Order No.: 0411354

Dear Jan Barbas,

Analytical Services Center received 5 samples on Monday, November 29, 2004 for the analyses presented in the following report.

The ASC certifies that the test results in this report meet all requirements of NELAC for which it holds certification except as noted in this narrative and/or as flagged in the report.

The ASC is accredited in the Fields of Testing Potable water (SDWA), Solid and Chemical Materials (Solid Hazardous Wastes, RCRA), Water (CWA and other non-potable water) and Air and Emissions. Its primary accrediting authorities are New York State Department of Health and Florida Department of Health. The particular analytes/methods certified may be ascertained by requesting the laboratory's current certificates from your laboratory Project Manager.

You will receive an invoice under separate cover.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is \$1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

Sincerely,


Tony Bogoln

Project Manager

CC:

Enclosures as noted



Analytical Services Center
International Specialists in Environmental Analysis
Lancaster, New York 14086-
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Lab Order: 0411354
Date Received: 11/29/2004

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Alt. Client Id	Collection Date
0411354-01A	D-12GW001		11/23/2004 11:47:00 AM
0411354-02A	D-13GW001		11/23/2004 12:18:00 PM
0411354-03A	D-13FD001		11/23/2004 12:30:00 PM
0411354-04A	D-16GW001		11/23/2004 1:11:00 PM
0411354-05A	TRIP BLANK		11/23/2004 7:00:00 AM



Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: PARSONS ENGINEERING SCIENCE, INC.
Project: Tooele RCRA Phase II
Lab Order: 0411354

CASE NARRATIVE

Samples were received at a cooler temperature of $>15^{\circ}\text{C}$. They were shipped on 11/23/04 and received at the E&E corporate office on 11/26/04. The samples were then delivered to the Analytical Services Center on 11/29/04. A trip blank was received but was not listed on a chain-of-custody form. Jan Barbas was notified on November 29, 2004 and instructed the laboratory to attempt to analyze all samples including the trip blank within half the hold time (7 days). All samples were analyzed on the seventh day of the hold time.

GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

Sample Analysis

All aqueous volatile samples were determined to be at a pH of 1.

All samples were analyzed within hold time.

Calibration and Tunes

All initial and continuing calibrations were acceptable.

There were no manual integrations required.

QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable.

All laboratory control sample(LCS) recoveries were acceptable.

All internal standard area responses were acceptable.

Tony Bogolin
December 13, 2004
Project Manager

SAMPLE RECEIPT RECORDS

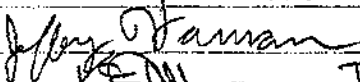


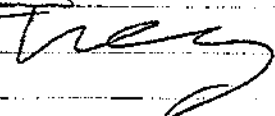
CHAIN OF CUSTODY

PARSONS

COC ID: 821

Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
Project Manager:	Ed Staes	Installation:	TEAD	406 W. South Jordan Parkway
Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	Suite 300
				South Jordan, Utah 84095
				(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-12	D-12	D-12GW001	WG	DF	N	1	11/23/04	1147	EM			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11/23/04 1410		23 Nov 04 1410
 To FedEx	11/23/04 1600		11/24/04 1200

CHAIN OF CUSTODY PARSONS COC ID: 822		Project Name: Tooele Industrial Area		Contractor: Parsons - SLC		Parsons Point of Contact: Jan Barbas	
		Project Manager: Ed Staes		Installation: TEAD		406 W. South Jordan Parkway	
		Sample Coordinator: Jeff Bigelow		Sample Program: Shallow Soil Sampling		Suite 300 South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069	

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-13	D-13	D-13GW001	WG	DF	N	1	11/23/04	1218		211		3
Analysis		Lab	Cooler	No. Conts.	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN										

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeff Bigelow</i>	11/23/04 1410	<i>[Signature]</i>	23 NOV 04 1410
<i>[Signature] To Fed Ex</i>	11/23/04 1600	<i>[Signature]</i>	11/29/04 1200

CHAIN OF CUSTODY

PARSONS

COC ID: 823

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
405 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

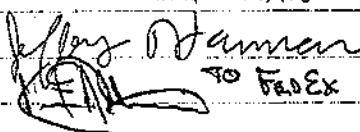

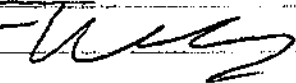
Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-13	D-13	D-13FD001	WG	DF	FD	1	11/23/04	1230	EH			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11/23/04 1410		23 NOV 04 1410
TO FedEx	11/23/04 1600		11/29/04 1200

CHAIN OF CUSTODY

PARSONS

COC ID: 827

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16GW001	WG	DF	N	1	11/23/04	1311	IM			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23/10401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeffery Stamm</i> <i>Jeffery Stamm</i> To Red Ex	11/23/04 1410 11/23/04 1600 KA	<i>[Signature]</i> <i>Uley</i>	23 Nov 04 1410 11/23/04 1200

CHAIN OF CUSTODY PARSONS COC ID: 828	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16MS001	WG	DF	MS	1	11/23/04	1311	JM			1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>[Signature]</i>	11/23/04 1410	<i>[Signature]</i>	23 Nov 04 1410
<i>[Signature]</i> To Geo Ex	11/23/04 1600	<i>[Signature]</i>	11/24/04 1200

CHAIN OF CUSTODY

PARSONS

COC ID: 829

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

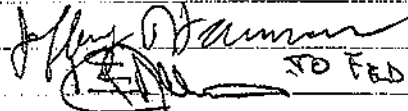
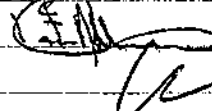
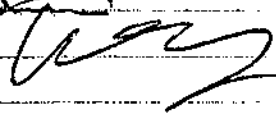
Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16SD001	WG	DF	SD	1	11/23/04	1311	SM			1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)

Date/Time

Received by (Signature)

Date/Time

	11/23/04 1410		23 Nov 04 1410
JD FED EX	11/23/04 1600		11/24/04 1200



Cooler Receipt Form

No. of Packages:		Date Received:	11/29/04
Package Receipt No.:	15096	Project or Site Name:	
Client:	Person		

A. Preliminary Examination and Receipt Phase

1. Did coolers come with airbill or packing slip?	Circle One		
Circle carrier here and print airbill number below: Fed Ex Airborne Client Other	Yes	No	NA
Shipped as high hazard or dangerous goods?	Yes	No	NA
2. Did cooler(s) have custody seals?	Yes	No	NA
3. Were custody seals unbroken and intact on receipt?	Yes	No	NA
4. Were custody seals dated and signed?	Yes	No	NA
5. How was package secured? <input type="checkbox"/> Not secured <input type="checkbox"/> Fiberglass Tape <input checked="" type="checkbox"/> TAPE	Yes	No	NA

B. Unpacking Phase

6. Date cooler(s) opened: 11/29/04	Cooler(s) opened by: [Signature]		
7. Was a temperature blank vial included inside cooler(s)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>		
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*			
Arriving Temp	Temp	Arriving Temp	Temp
8457 2765 3991	25.0		
Thermometer No.: 231	Correction Factor: 0	*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.	
8. Were the C-O-C forms received?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>		
C-O-C forms numbers if present:			
9. Was enough packing material used in cooler(s)?	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>		
Type of material: <input type="checkbox"/> Vermiculite <input checked="" type="checkbox"/> Bubble Wrap <input type="checkbox"/> Other			
10. If cooling was required, what was the means (type ice) of cooling used: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Blue <input type="checkbox"/> Other	NA		
11. Were all containers sealed in separate plastic bags?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>		
12. Did all containers arrive unbroken and in good condition?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>		
13. Interim storage area if not logged:			
In: Date _____ Time _____	Signature _____		
Out: Date _____ Time _____	Signature _____		

C. Login Phase

Samples Logged in By Signature: [Signature]	Date: 11/29/04
14. Were all container labels complete (e.g. date, time preserved)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
15. Were all C-O-C forms filled out properly in black ink and signed?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
16. Did the C-O-C form agree with containers received?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
17. Were the correct containers used for the tests requested?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
18. Were the correct preservatives listed on the sample labels?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
19. Was a sufficient sample volume sent for the tests requested?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
20. Were all volatile samples received without headspace?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>



PROJECT MANAGER NOTIFICATION

Originator: K. Oakley Date: 11/29/07
ASC Project Manager: Tony Campbell Client: Parsons - Tiede
Job Nos.: 0411354
Sample Nos.: A11

Nature of Concern:

☐ Samples warm @ 75.0°

List Containers: _____

☐ Containers broken. List: _____

☐ Discrepancy between sample containers and COC form

☐ Incorrect or insufficient preservation

☐ Headspace in volatile vials (waters samples only)

☐ Lost shipment: _____

☐ Other (e.g., leaking container, unreadable label, COC form): _____

Further Description: _____

PROJECT MANAGER FOLLOW-UP

☒ Notified Client: Jim Barbours

on

11/29/07
(Date)

☐ Notification attempted:

Means: _____

on

(Date)

☐ Notification unnecessary

☐ Notify Sample Management

Action: See attached email

Project Manager Signature: Tony Campbell

Date: 11/29/07

Bogolin, Tony

From: Barbas, Jan [Jan.Barbas@parsons.com]
Sent: Monday, November 29, 2004 5:00 PM
To: Bogolin, Tony
Cc: Torgensen, John
Subject: RE: Tooele sample receipt 112904

Hi,

Please analyze the trip blank.

The EDD does go to Synectics.

Jan

From: Bogolin, Tony [mailto:ABogolin@ene.com]
Sent: Monday, November 29, 2004 2:43 PM
To: Barbas, Jan
Cc: Torgensen, John
Subject: RE: Tooele sample receipt 112904

Here is the sample receipt information. We received a trip blank that was not listed on the COC forms. We logged it in for analysis. Let me know if you do not want it analyzed.

Does the EDD for these samples go to Synectics?

Tony

From: Barbas, Jan [mailto:Jan.Barbas@parsons.com]
Sent: Monday, November 29, 2004 2:37 PM
To: Bogolin, Tony
Cc: Torgensen, John; Wehrmann, Pamela A SPK
Subject: RE: Tooele sample receipt 112904

Go ahead and log them in. If you can run them tomorrow I think that would work since I miscounted the hold time. We have until tomorrow. If not let's plan on running them anyway. I'll let the client know and get their input.

Jan

From: Bogolin, Tony [mailto:ABogolin@ene.com]
Sent: Monday, November 29, 2004 12:16 PM
To: Barbas, Jan
Cc: Torgensen, John; Wehrmann, Pamela A SPK
Subject: RE: Tooele sample receipt 112904

No. The instrument is fully loaded for today so the quickest would be some time tomorrow evening if we could get another instrument up for low-level water VOCs.

From: Barbas, Jan [mailto:Jan.Barbas@parsons.com]

Sent: Monday, November 29, 2004 1:45 PM
To: Bogolin, Tony
Cc: Torgensen, John; Wehrmann, Pamela A SPK
Subject: RE: Tooele sample receipt 112904

Hi Tony,

Thanks for the heads-up. We thought they'd be in last Wednesday. The rule on warm samples is that if they are analyzed within 1/2 hold time they are ok. These were sampled Tuesday. That would mean they have to be analyzed by mid-night today. Can you do that?

Jan

From: Bogolin, Tony [mailto:ABogolin@ene.com]
Sent: Monday, November 29, 2004 11:30 AM
To: Barbas, Jan
Cc: Torgensen, John
Subject: Tooele sample receipt 112904

Jan:

We received these samples today. They were shipped by FedEx on 11/23 and marked for overnight delivery. Why they did not show until today I don't know. Of course they were warm >15 C. Should we cancel the analysis as they are VOC samples? Let me know.

Tony

<<tooelecoc.pdf>>

MISC RECORDS



Analytical Services Center
 International Specialists in Environmental Analysis
 Lancaster, New York 14086-
 Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Order: 0411354
 Client: Parsons Engineering Science, Inc.
 Project: Tooele RCRA Phase II

DATES SUMMARY REPORT

Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	Fl
354-01A	D-12GW001	Water Low Level VOCs by Method 8260B	11/23/2004 11:47:00 AM	11/29/2004 12:00:00 PM	14:C 12/7/2004 11:47:00 AM	11/30/2004 4:18:00 PM 1072898	SAMP	1	21	[
354-03A	D-13FD001	Water Low Level VOCs by Method 8260B	11/23/2004 12:30:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 12:30:00 PM	11/30/2004 5:21:00 PM 1072900	SAMP	1	21	[
354-02A	D-13GW001	Water Low Level VOCs by Method 8260B	11/23/2004 12:18:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 12:18:00 PM	11/30/2004 4:49:00 PM 1072899	SAMP	1	21	[
354-04A	D-16GW001	Water Low Level VOCs by Method 8260B	11/23/2004 1:11:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 1:11:00 PM	11/30/2004 5:52:00 PM 1072901	SAMP	1	21	[
354-05A	TRIP BLANK	Water Low Level VOCs by Method 8260B	11/23/2004 7:00:00 AM	11/29/2004 12:00:00 PM	14:C 12/7/2004 7:00:00 AM	11/30/2004 3:46:00 PM 1072897	SAMP	1	21	[

From: C-Collection / R- Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analyzed" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analyzed" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date time of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests... "Analyzed" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.



Analytical Services Center
International Specialists in Environmental Analysis
Lancaster, New York 14086-
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Client: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Work Order: 0411354

Method References

GCMS Volatiles

Parsons, Tooele - VOCs, Low Level by GCMS Method
8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical
Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes
all Updates). U.S. Environmental Protection Agency, Office of Solid
Waste and Emergency Response.

RESULTS SUMMARY

**Analytical Services Center**

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-12GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 11:47:00 A % Moist:

Lab ID: 0411354-01A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 4:18:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	110		70 - 130	%REC	1	11/30/2004 4:18:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr:Toluene-d8	112		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroluum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

E - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-13GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 12:18:00 P % Moist:

Lab ID: 0411354-02A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCS BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 4:49:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	0.193	J	1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	108		70 - 130	%REC	1	11/30/2004 4:49:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	107		70 - 130	%REC	1			
Surr:Toluene-d8	113		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

**Analytical Services Center**

International Specialists in Environmental Analysis

4493 Walden Avenue

a division of
ecology and environment, inc.

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-13FD001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 12:30:00 P % Moist:

Lab ID: 0411354-03A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 5:21:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	0.195	J	1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Sum: 1,2-Dichloroethane-d4	109		70 - 130	%REC	1	11/30/2004 5:21:00 PM	PERRY_041130A	RMJ
Sum: 4-Bromofluorobenzene	107		70 - 130	%REC	1			
Sum: Toluene-d8	113		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

I - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-16GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 1:11:00 P % Moist:

Lab ID: 0411354-04A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 5:52:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Sum: 1,2-Dichloroethane-d4	109		70 - 130	%REC	1	11/30/2004 5:52:00 PM	PERRY_041130A	RMJ
Sum: 4-Bromofluorobenzene	108		70 - 130	%REC	1			
Sum: Toluene-d8	112		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: TRIP BLANK

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 7:00:00 A % Moist:

Lab ID: 0411354-05A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 3:46:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	0.207	J	2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	0.262	J	1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	115		70 - 130	%REC	1	11/30/2004 3:46:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr:Toluene-d8	110		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

AUTOMATED DATA REVIEW SUMMARY

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Contract: 9T9H213C
Sample Delivery Group: 0411354

Field Contractor: Parsons Engineering Science, Salt Lake City
Laboratory Contractor: Ecology and Environment, Inc., Lancaster, NY
Data Review Contractor: Synectics, Sacramento, CA
Guidance Document: *Final Phase II RCRA Facility Investigation SWMU-58 Workplan, December 2003*

Analytical Method	Normal Samples	Field QC Samples
SW8260B	3	2

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in Final Phase II RCRA Facility Investigation SWMU-58 Workplan, December 2003 to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as "J/UJ", the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Parsons Engineering Science, Salt Lake City; analyses were performed by Ecology and Environment, Inc., Lancaster, NY and were reported under sample delivery group (SDG) 0411354. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative. The following quality control elements were evaluated during this review effort:

- Technical Holding Times
- Continuing Calibration Verification
- Method Blank Contamination
- Field Blank Contamination
- Blank Spike Accuracy
- Blank Spike Precision
- Matrix Spike Accuracy
- Matrix Spike Precision
- Surrogate Recovery
- Laboratory Duplicate Precision
- Field Duplicate Precision

A minimum of ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following reports were generated during the evaluation of this data set and are presented as attachments to this report as applicable.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outlier Report.

Field Duplicate – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the ADR narrative.

Out of control events experienced by the laboratory have warranted the qualification of 0 % (0 results) and the rejection of 0 % (0 results) of the data set. These deficiencies are detailed in the referenced attachments, and discussed in the ADR narrative, where appropriate.

Released by

Date

Reason and Comment Codes

<u>Code</u>	<u>Definition</u>
C1	Diluted Out
C2	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)
C3	No Action
C4	No QC Outliers
C5	One or both values <5x RL
C6	Recalculated Value
C7	Material Blanks
C8	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank

Reasons

<u>Code</u>	<u>Definition</u>
A	Serial dilution
B	Calibration Blank - Negative
	Negative Blank
B1	Blank
B2	Calibration Blank
C	Continuing Calibration Verification
	Continuing Calibration Verification RRF
D	BS RPD
	Field Duplicate RPD
D1	Lab Replicate RPD
D2	MS RPD
E	Exceeds Linear Calibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
	Initial Calibration RSD
H	Test Hold Time
	Prep Hold Time
I	Internal standard
K1	Equip Blank
K2	Field Blank
K3	Trip Blank
L	LCS Recovery
M	MS Recovery
N	Blank - No Action
O	Interference check sample
P	Column RPD
Q	Material Blank
S	Surrogate
T	Receipt Temperature
TI	Tentatively Identified Compound
TR	Trace Level Detect
W	Column breakdown (pesticides)
X	Raised reporting limit
Y	Analyte not confirmed on second column

ADR CASE NARRATIVE

Laboratory ID: 0411354

Prior to loading and processing data, modifications to the project setup may be requested by the laboratory and/or contractor, and approved by the client. These modifications allow the loading of data that was not in complete agreement with the project guidance document; in some cases, variances to the project document may be in process, in others, the changes are required to accept data that had not been generated in compliance with the project guidance document. All project setup modifications are listed below:

There were no project setup modifications associated with this sample delivery group.

Chemistry Data Quality

It was found that all field sample reporting limits (RL) reported by the lab did not meet the project specified RLs required in the project setup.

Data Verification

The data verification process includes a manual review of information on the chains of custody and laboratory case narratives, a check of all rejected results and a minimum of 10 percent of sample and QC results for consistency with hard copy reports, and a cursory review of all reports generated during the automated review process. The following comments are associated with the verification process:

There were no data verification findings associated with this sample delivery group that require discussion beyond that summarized in the attached reports.

All of the reports utilized during the data verification process are provided as attachments to this report.

Batch Report

Facility: SWMU 58
Lab: ECEN
Filename: 0411354
Status: Certified - 12/16/2004
User: EvinMcKinney

Test Method: SW8260B
Prep Method: SW5030
Leach Method: NONE

<u>Test Batch</u>	<u>Prep Batch</u>	<u>Leach Batch</u>	<u>Location</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Lab Sample ID</u>	<u>Test Date and Time</u>	<u>Sample Type</u>
PERY41130A	0411304p1r	NA	LABQC	WQ		CCV1078348	11/30/2004 12:55:00PM	CV1
	0411304p1r	NA	LABQC	WQ		LCS1845211	11/30/2004 2:15:00PM	BS1
	0411304p1r	NA	LABQC	WQ		MB1845211	11/30/2004 2:46:00PM	LB1
	0411304p1r	NA	FIELDQC	WQ	TRIP BLANK	0411354-05	11/30/2004 3:46:00PM	TB1
	0411304p1r	NA	D-12	WG	D-12GW001	0411354-01	11/30/2004 4:18:00PM	N1
	0411304p1r	NA	D-13	WG	D-13GW001	0411354-02	11/30/2004 4:49:00PM	N1
	0411304p1r	NA	D-13	WG	D-13FD001	0411354-03	11/30/2004 5:21:00PM	FD1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 5:52:00PM	N1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 7:01:00PM	MS1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 7:32:00PM	SD1

Detected Results

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Reference: ISSS-539-01

SDG: 0411354

Volatile Organic Compounds by Capillary GC/MS

<u>Test/Leach</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Type</u>	<u>Analyte</u>	<u>RL</u>	<u>Lab Result</u>	<u>Qualified Result</u>	<u>Units</u>	<u>Reason</u>
SW8260B/NONE	WG	D-13FD001	FD	Chloroform	1.0	0.20 J	0.20 J	UG/L	TR
SW8260B/NONE	WG	D-13GW001	N	Chloroform	1.0	0.19 J	0.19 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Methylene Chloride	2.0	0.21 J	0.21 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Toluene	1.0	0.26 J	0.26 J	UG/L	TR

QC Outliers

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Reference: 9T9H213C

SDG 0411354

<u>Test/Leach</u>	<u>QCElement</u>	<u>Sample</u>	<u>Type</u>	<u>Dil'n</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Warning</u> <u>Limits</u>	<u>Control</u> <u>Limits</u>	<u>Qualifier</u>	<u>Reason</u>	<u>Comnt.</u>
SW8260B/NONE	Trip Blk. Cont.	TRIP BLANK	TB1	1.00	Methylene Chloride	0.21	UG/L	< 0.128	< 2	U / None	K3	
SW8260B/NONE	Trip Blk. Cont.	TRIP BLANK	TB1	1.00	Toluene	0.26	UG/L	< 0.119	< 1	U / None	K3	

Qualified Results

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Reference: ISSS-539-01

SDG: 0411354

Volatile Organic Compounds by Capillary GC/MS

<u>Test/Leach</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Type</u>	<u>Analyte</u>	<u>RL</u>	<u>Lab Result</u>	<u>Qualified Result</u>	<u>Units</u>	<u>Reason</u>
SW8260B/NONE	WG	D-13FD001	FD	Chloroform	1.0	0.20 J	0.20 J	UG/L	TR
SW8260B/NONE	WG	D-13GW001	N	Chloroform	1.0	0.19 J	0.19 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Methylene Chloride	2.0	0.21 J	0.21 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Toluene	1.0	0.26 J	0.26 J	UG/L	TR

DATA MANAGEMENT NARRATIVE

Laboratory ID: 0411354

Data Submission

The data submission process incorporates a series of stored procedures designed to identify valid value (VVL), logical (LE), and project specific errors (PSE) in electronic data deliverables (EDD). Automated data review (ADR) is most efficient when data generators correct all errors. Dependent primarily upon the electronic reporting capabilities of the data generator, the severity of the logical and project specific errors listed below have been reduced to warnings. A warning log is generated with each data submission and is presented as an attachment to this report. A brief explanation of each error encountered for this data set and the potential impact on data quality is summarized below.

1. Project Specific Error (PSE) spPSE01L_Invalid_Units_QC

This PSE occurs when laboratory quality control samples are reported with units of percent as opposed to true values. This inconsistency does not affect data quality, unless the submittal is scheduled for delivery to the AFCEE in accordance with the ERPIMS 4.0 specification. Automated data review can be performed for laboratory QC when units are reported in percent or in concentration units. However, to avoid this warning on future submittals, the laboratory would need to report these values in units of concentration (i.e., ug/L).

2. Logical Error (LE) spLE01_QAPPFLAGS_F

This LE warning occurs when there are positive results less than the RL and associated QAPPFLAGS are not "F". This requirement is only necessary if the project is an AFCEE project or if the data is to be submitted to ERPIMS. To avoid this warning in the future, apply QAPPFLAGS of "F" whenever the detected result is less than the RL.

A detailed description of the stored procedures utilized during the data submission process is provided as an attachment to this report (Submission Warnings).

Submission Warnings

Facility: SWMU 58
Data Generator: ECEN
File Name: W:\2004\0411354\0411354.LB1

PSE

<u>Query Name</u>	<u>Finding</u>	<u>Record Count</u>
spPSE01L_Invalid_Units_QC	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is CV/ORG; UNITS is PERCENT	21
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is MS/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is MS/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is BS/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is SD/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is BS/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is N/STD; UNITS is PERCENT	9
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is SD/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is LB/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is CV/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is TB/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is FD/STD; UNITS is PERCENT	3

VWL

<u>Query Name</u>	<u>Finding</u>	<u>Record Count</u>
spLE01_QAPPFLAGS_F	PARVQ is TR; PARVAL is 0.2620; RL is 1.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.1930; RL is 1.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.2070; RL is 2.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.1950; RL is 1.0000; QAPPFLAGS is J	1

Submission Warnings

Facility: SWMU 58
Data Generator: ECEN
File Name: W:\2004\0411354\0411354.LB1

Total Record Count:	189
Error Count:	0
Warning Count:	67

APPENDIX G

PARSONS

406 West South Jordan Parkway, Suite 300 • South Jordan, Utah 84095 • (801) 572-5999 • Fax (801) 572-9069

Memorandum

To: Dean Reynolds, TEAD; Larry McFarland, TEAD
Copy: Maryellen Mackenzie, USACE; Carl Cole, USACE; Doug Mackenzie, USACE; Richard Jirik, Parsons
From: Jan Barbas, Parsons; Jeff Bigelow, Parsons
Date: Monday October 18, 2004
Subject: TEAD SWMU-58 RFI - Waste Management

This letter is to recommend disposition of the 18 drums summarized in Table One, attached. The waste was generated in association with the drilling of well D-12.

Eighteen drum of saturated soil cutting waste was generated and one sample was taken for each five drums. Therefore four samples were taken and labeled IDW04 – IDW07. Samples were analyzed for TCLP VOCs. Analysis was conducted by Ecology and Environment, Inc, Lancaster NY, a Utah Certified laboratory.

Results have been received as data packages and electronic data deliverables. Parsons has reviewed the data and found QC to be acceptable. Analytical results and case narrative are attached in portable document format.

Listed Wastes Analysis:

Tetrachloroethylene (PCE) and Benzene were detected in two of the four samples. PCE is not generally present in the northeast boundary plume. Although PCE is generally non-detect in C-33, a few sporadic trace (<1 ug/L) detections have occurred over the years. PCE has not been detected in C-26 or in the D-series wells. PCE does not appear to be a plume constituent. Benzene has not been detected in C-33, C-26 or in the D-series wells, and is not a plume constituent.

Therefore there is no reason to associate the detections of PCE or Benzene with a known source or any activity of TEAD. The source of PCE and Benzene in these samples is unknown.

Characteristic Wastes Analysis:

The waste is known to be primarily soil. Therefore generator's reasonable knowledge may be used to exclude the characteristics of ignitability, reactivity and corrosivity.

No analytes were detected in excess of TCLP limits (PCE and Benzene were detected below TCLP limits). Therefore no characteristic waste codes (40 CFR Part 261.24) should be applied.

Disposition:

Parsons recommends that this waste be returned to the site for disposal on the ground surface.

Parsons will arrange to dispose of the waste per your written instructions.





analytical services center

International Specialists in Environmental Analysis

4493 Walden Avenue, Lancaster, New York 14086

Tel: 716/685-8080, 800/327-6534 • Fax: 716/685-0852 • Email: asc@ene.com



October 13, 2004

Jan Barbas
Parsons Engineering Science, Inc.
406 W. South Jordan Pkwy.
Suite 300
South Jordan, Utah 840953944

RE: Tooele RCRA Phase II

Work Order No.: **0409250**

Dear Jan Barbas,

Analytical Services Center received 4 samples on Thursday, September 23, 2004 for the analyses presented in the following report.

The ASC certifies that the test results in this report meet all requirements of NELAC for which it holds certification except as noted in this narrative and/or as flagged in the report.

The ASC is accredited in the Fields of Testing Potable water (SDWA), Solid and Chemical Materials (Solid Hazardous Wastes, RCRA), Water (CWA and other non-potable water) and Air and Emissions. Its primary accrediting authorities are New York State Department of Health and Florida Department of Health. The particular analytes/methods certified may be ascertained by requesting the laboratory's current certificates from your laboratory Project Manager.

You will receive an invoice under separate cover.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is \$1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

Sincerely,

Tony Bogolin
Project Manager

CC:

Enclosures as noted



Analytical Services Center
International Specialists in Environmental Analysis
Lancaster New York 14086
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Lab Order: 0409250
Date Received: 9/23/2004

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Alt. Client Id	Collection Date
0409250-01A	IDW04		9/15/2004 9:00:00 AM
0409250-01B	IDW04		9/15/2004 9:00:00 AM
0409250-02A	IDW05		9/15/2004 2:00:00 PM
0409250-02B	IDW05		9/15/2004 2:00:00 PM
0409250-03A	IDW06		9/20/2004 9:00:00 AM
0409250-03B	IDW06		9/20/2004 9:00:00 AM
0409250-04A	IDW07		9/21/2004 9:00:00 AM
0409250-04B	IDW07		9/21/2004 9:00:00 AM



Analytical Services Center
 International Specialists in Environmental Analysis
 Lancaster New York 14086
 Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486
 Phone: (716) 685-8080

Order: 0409250
 Client: Parsons Engineering Science, Inc.
 Project: Tooele RCRA Phase II

DATES SUMMARY REPORT

Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	FI
250-01B IDW04	Soil	TCLP Ext for VOCs by M 1311	9/15/2004 9:00:00 AM	9/23/2004 10:45:00 AM	14:C 9/29/2004 9:00:00 AM	9/28/2004 9:14:40 AM 200403814	NA	NA	NA	[
		TCLP Volatile Organic Compounds by Method 8260B			14:T 10/14/2004 5:02:29 PM	10/6/2004 6:01:00 PM 1038141	SAMP	10	10	[
Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	FI
250-02B IDW05	Soil	TCLP Ext for VOCs by M 1311	9/15/2004 2:00:00 PM	9/23/2004 10:45:00 AM	14:C 9/29/2004 2:00:00 PM	9/28/2004 9:14:40 AM 200403814	NA	NA	NA	[
		TCLP Volatile Organic Compounds by Method 8260B			14:T 10/14/2004 5:02:29 PM	10/6/2004 6:31:00 PM 1038142	SAMP	10	10	[
Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	FI
250-03B IDW06	Soil	TCLP Ext for VOCs by M 1311	9/20/2004 9:00:00 AM	9/23/2004 10:45:00 AM	14:C 10/4/2004 9:00:00 AM	9/28/2004 9:14:40 AM 200403814	NA	NA	NA	[
		TCLP Volatile Organic Compounds by Method 8260B			14:T 10/14/2004 5:02:29 PM	10/6/2004 7:02:00 PM 1038143	SAMP	10	10	[
Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	FI
250-04B IDW07	Soil	TCLP Ext for VOCs by M 1311	9/21/2004 9:00:00 AM	9/23/2004 10:45:00 AM	14:C 10/5/2004 9:00:00 AM	9/28/2004 9:14:40 AM 200403814	NA	NA	NA	[
		TCLP Volatile Organic Compounds by Method 8260B			14:T 10/14/2004 5:02:29 PM	10/6/2004 7:32:00 PM 1038144	SAMP	10	10	[

from: C-Collection / R- Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analyzed" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analyzed" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date time of completion of the preparation.
 TCLP/SPLP Extractions and subsequent preparation tests..."Analyzed" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.



Analytical Services Center

International Specialists in Environmental Analysis

Lancaster New York 14086

Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Client: Parsons Engineering Science, Inc.

Project: Tooele RCRA Phase II

Work Order: 0409250

Method References

GCMS Volatiles

TCLP VOCs by Method 8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes all Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

SAMPLE RECEIPT RECORDS

CHAIN OF CUSTODY PARSONS COC ID: 525	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact:	Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	406 W. South Jordan Parkway	
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	Suite 300 South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069	

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End Depth	Total Conts.
IDW	IDW04	IDW04	SO	G	N	1	9/15/04	09:00	JJB	0	0	4
Analysis		Lab	Container	No. Conts.	AB Lot	EB Lot	TB Lot	Remarks:				
VOCM		ECEN	IDW01	4	-	-	-	IDW Sample for drums:				

PARSIN20425701

PARSN20425901-04

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>[Signature]</i>	9/22/04 11:30		
<i>[Signature]</i>	9-23-04 10:45		

CHAIN OF CUSTODY PARSONS COC ID: 526	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

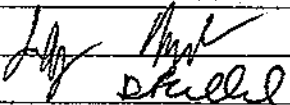
Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End Depth	Total Conts
IDW	IDW05	IDW05	SO	G	N	1	9/15/04	14:00	JJB	0	0	5
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	Remarks:					
VOCM		ECEN	IDW01	4	-	-						

IDW Sample for drums:

JJB 9-22-04

PARSN204125908-07

PARSN204126401-02

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	9/22/04 11:30		
	9-23-04 10:25		

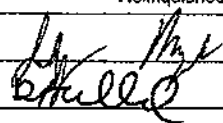
CHAIN OF CUSTODY PARSONS COC ID: 528	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End Depth	Total Conts
IDW	IDW06	IDW06	SO	G	N	1	9/20/04	09:00	JTB	0	0	4
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOCM		ECEN	IDW01	4	—	—	—					

IDW sample for drums:

PARSN20426403-06

PARSN20426501

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	9/22/04 11:30		
	9-23-04 10:25		

CHAIN OF CUSTODY

PARSONS

COC ID: 529

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

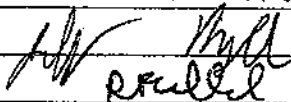
Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End Depth	Total Conts.
IDW	IDW07	IDW07	SO	G	N	1	9/21/04	09:00	JTB	0	0	4
Analysis		Lab	Cooper	No. Conts.	AB Lot	EB Lot	TB Lot	Remarks:				
VOCM		ECEN	IDW01	4	-	-	-					

IDW sample for drums:

PARS1X20426502-03

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	9/22/04 11:30		
	9-23-04 10:25		



Cooler Receipt Form

No. of Packages:	1	Date Received:	9/23/04
Package Receipt No.:	4528	Project or Site Name:	Toole
Client:	Parsons		

A. Preliminary Examination and Receipt Phase		Circle One		
1. Did coolers come with airbill or packing slip?		Yes	No	NA
Circle carrier here and print airbill number below: Fed Ex Airborne Client Other _____				
Shipped as high hazard or dangerous goods?		Yes	No	NA
2. Did cooler(s) have custody seals?		Yes	No	NA
3. Were custody seals unbroken and intact on receipt?		Yes	No	NA
4. Were custody seals dated and signed?		Yes	No	NA
5. How was package secured?	<input type="checkbox"/> Not secured <input checked="" type="checkbox"/> Fiberglass Tape <input type="checkbox"/> _____			

B. Unpacking Phase					
6. Date cooler(s) opened: 9-23-04	Cooler(s) opened by: <u>Dr. Kuller</u> (Signature)				
7. Was a temperature blank vial included inside cooler(s)?	Yes No NA				
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*					
Airbill No.	Temp. °C	Airbill No.	Temp. °C	Airbill No.	Temp. °C
8457 2785 4314	4.0				
Thermometer No.: 231	Correction Factor: 0.0	*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.			
8. Were the C-O-C forms received?		Yes	No	NA	
C-O-C forms numbers if present:					
9. Was enough packing material used in cooler(s)?		Yes	No	NA	
Type of material: <input type="checkbox"/> Vermiculite <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Other _____					
10. If cooling was required, what was the means (type ice) of cooling used: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Blue <input type="checkbox"/> Other _____					NA
11. Were all containers sealed in separate plastic bags?		Yes	No	NA	
12. Did all containers arrive unbroken and in good condition?		Yes	No	NA	
13. Interim storage area if not logged: <u>u</u>					
In: Date 9-23-04 Time 11:30	Signature: <u>Dr. Kuller</u>				
Out: Date _____ Time _____	Signature: _____				

C. Login Phase	
Samples Logged in By Signature: <u>Dr. Kuller</u>	Date: 9/23/04
14. Were all container labels complete (e.g. date, time preserved)?	Yes No NA
15. Were all C-O-C forms filled out properly in black ink and signed?	Yes No NA
16. Did the C-O-C form agree with containers received?	Yes No NA
17. Were the correct containers used for the tests requested?	Yes No NA
18. Were the correct preservatives listed on the sample labels?	Yes No NA
19. Was a sufficient sample volume sent for the tests requested?	Yes No NA
20. Were all volatile samples received without headspace?	Yes No NA

RESULTS SUMMARY



Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW04

Lab Order: 0409250

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 9/15/2004 9:00:00 AM % Moist:

Lab ID: 0409250-01B

Sample Type: SAMP

Matrix: Soil

Test Code: 1_1311_8260B_L

TCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	10/6/2004 6:01:00 PM	ROBERT_041006A	RMJ
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	0.00741	J	0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	0.0105	J	0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr:1,2-Dichloroethane-d4	103		82 - 124	%REC	10	10/6/2004 6:01:00 PM	ROBERT_041006A	RMJ
Surr:4-Bromofluorobenzene	111		87 - 115	%REC	10			
Surr:Toluene-d8	108		85 - 115	%REC	10			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNF - Did not find

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW05

Lab Order: 0409250

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 9/15/2004 2:00:00 PM % Moist:

Lab ID: 0409250-02B

Sample Type: SAMP

Matrix: Soil

Test Code: 1_1311_8260B_L

TCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	10/6/2004 6:31:00 PM	ROBERT_041006A	RMJ
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	ND		0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	0.00603	J	0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr:1,2-Dichloroethane-d4	101		82 - 124	%REC	10	10/6/2004 6:31:00 PM	ROBERT_041006A	RMJ
Surr:4-Bromofluorobenzene	115		87 - 115	%REC	10			
Surr:Toluene-d8	110		85 - 115	%REC	10			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW06

Lab Order: 0409250

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 9/20/2004 9:00:00 AM % Moist:

Lab ID: 0409250-03B

Sample Type: SAMP

Matrix: Soil

Test Code: 1_1311_8260B_L

TCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	10/6/2004 7:02:00 PM	ROBERT_041006A	RMJ
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	ND		0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	ND		0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr:1,2-Dichloroethane-d4	102		82 - 124	%REC	10	10/6/2004 7:02:00 PM	ROBERT_041006A	RMJ
Surr:4-Bromofluorobenzene	107		87 - 115	%REC	10			
Surr:Toluene-d8	109		85 - 115	%REC	10			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

**Analytical Services Center**

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW07

Lab Order: 0409250

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 9/21/2004 9:00:00 AM % Moist:

Lab ID: 0409250-04B

Sample Type: SAMP

Matrix: Soil

Test Code: 1_1311_8260B_L

TCCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	10/6/2004 7:32:00 PM	ROBERT_041006A	RMJ
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	ND		0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	ND		0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr: 1,2-Dichloroethane-d4	100		82 - 124	%REC	10	10/6/2004 7:32:00 PM	ROBERT_041006A	RMJ
Surr: 4-Bromofluorobenzene	109		87 - 115	%REC	10			
Surr: Toluene-d8	110		85 - 115	%REC	10			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantization limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

E. CONSTITUENTS -- Are these values based on testing or knowledge?

☐ Knowledge ☒ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. If based on knowledge, basis of knowledge must be provided below.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CADMIUM	1.0		
D007	CHROMIUM	5.0		
D008	LEAD	5.0		
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		

RCRA	VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D018	BENZENE	0.5	0.007	
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D028	1,2-DICHLOROETHANE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7	0.011	
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		

RCRA	SEMI-VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D023	p-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D030	2,4-DINITROTOLUENE	0.13		
D032	HEXACHLOROBENZENE	0.13		
D033	HEXACHLOROBUTADIENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		

RCRA	PESTICIDES AND HERBICIDE	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D012	ENDRIN	0.02		
D013	LINDANE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR	0.008		
	(AND ITS EPOXIDE)			

OTHER METALS	MIN	MAX	UOM
ALUMINUM			
ANTIMONY			
BERYLLIUM			
CALCIUM			
COPPER			
MAGNESIUM			
MOLYBDENUM			
NICKEL			
POTASSIUM			
SILICON			
SODIUM			
THALLIUM			
TIN			
VANADIUM			
ZINC			

NON-METALS	MIN	MAX	UOM
BROMINE			
CHLORINE			
FLUORINE			
IODINE			
SULFUR			

OTHER NON-METALS	MIN	MAX	UOM
AMMONIA			
REACTIVE SULFIDE			
CYANIDE-TOTAL			
CYANIDE AMENABLE			
CYANIDE REACTIVE			

OTHER CHEMICALS	MIN	MAX	UOM
PHENOL			
Total Petroleum Hydrocarbons			

OTHER	HOCs	PCBs
	<input checked="" type="checkbox"/> NONE < 1000 PPM ≥ 1000 PPM	<input checked="" type="checkbox"/> NONE < 50 PPM ≥ 50 PPM
		IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?
		YES <input checked="" type="checkbox"/> NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☒ NO (if yes, explain)

ASBESTOS
DEA REGULATED SUBSTANCES
DIOXIN
EXPLOSIVE
HERBICIDE
FUMING / SMOKING WASTE

INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT
OXIDIZER
OSHA REGULATED CARCINOGENS
PESTICIDE
POLYMERIZABLE
RADIOACTIVE

REDUCING AGENT
SHOCK SENSITIVE
SPONTANEOUSLY IGNITES WITH AIR
THERMALLY SENSITIVE
WATER REACTIVE

NONE OF THE ABOVE

F. REGULATORY STATUS

☒ YES NO USEPA HAZARDOUS WASTE?
 F001 F002

YES ☒ NO DO ANY STATE WASTE CODES APPLY?

☒ YES NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?
 LDR CATEGORY: This is subject to LDR.

VARIANCE INFO:

YES ☒ NO IS THIS A WASTEWATER PER 40 CFR PART 268.27
 YES ☒ NO IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D0011, D012-D017
 NON-WASTEWATERS, OR D018- D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT

YES ☒ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES ☒ NO IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?
 IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 4

YES ☒ NO IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT
 RECOVERY, OR PETROLEUM REFINERY PROCESS?)

YES ☒ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES ☒ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☒ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN
 77 KPa (11.2PSIA)?

YES ☒ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

G. D.O.T INFORMATION: (Include proper shipping name, hazard class and ID number).

 US D.O.T. DESCRIPTION: Hazardous waste, solid, n.o.s., (PCE, Benzene) , 9, NA3077, PG III
H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

IF BULK LIQUID OR BULK SOLID PLEASE INICATE THE EXPECTED NUMBER OF LOADS PER SHIPPING FREQUENCY

☒ CONTAINERIZED

1-20 CONTAINERS/SHIPMENT

STORAGE CAPACITY:

CONTAINER TYPE:

CUBIC YARD BOX

PALLET

TOTE TANK

OTHER:

☒ DRUM SIZE:

CONTAINER MATERIAL:

☒ STEEL

FIBER

PLASTIC

OTHER

BULK LIQUID

GALLONS/SHIPMENT:

GAL.

FROM TANKS: TANK SIZE

GAL.

FROM DRUMS

VEHICLE TYPE:

VAC TRUCK

TANK TRUCK

RAILROAD TANK CAR

CHECK COMPATIBLE STORAGE MATERIAL

STEEL

STAINLESS STEEL

RUBBER LINED

FIBERGLASS LINED

DERAKANE

OTHER

BULK SOLID

SHIPMENT UOM:

TON

YARD

PER SHIPMENT:

0.00 MIN

0.00MAX

STORAGE CAPACI

TON/YD

VEHICLE TYPE:

DUMP TRAILER

ROLL OFF BOX

INTERMODAL ROLLOFF BOX

CUSCO/VACTOR

OTHER

I. SPECIAL REQUEST

SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS:

SPECIAL WASTE HANDLING REQUIREMENTS

see attached analysis

OTHER COMMENTS OR REQUESTS:

J. BIENNIAL / ANNUAL REPORTING INFORMATION

SIC CODE 9711

SOURCE CODE

A69

FORM CODE

B301

ORIGIN CODE

2

K. SAMPLE STATUS

YES

SAMPLED BY

DATE SAMPLED

WHERE SENT

REPRESENTATIVE SAMPLE HAS BEEN SUPPLIE

☒ NO

GENERATORS CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT)

TITLE

DATE

FOR CLEAN HARBORS USE ONLY

CHI REPRESENTATIVE COMPLETING PROFILE:

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894		Manifest Document No. 20014		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074						A. State Manifest Document Number							
4. Generator's Phone (435) 833-3504						B. State Generator's ID							
5. Transporter 1 Company Name MP Environmental			6. US EPA ID Number CA1000624247			C. State Transporter's ID							
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone (435) 843-7802							
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptees Road Aragonite, UT 84029						E. State Transporter's ID							
						F. Transporter's Phone							
10. US EPA ID Number UT0981552177						G. State Facility's ID							
						H. Facility's Phone (801) 323-8100							
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. <input type="checkbox"/> HM Hazardous Waste Solid, N.O.S., (PCE, Benzene) 9, NA3077, PG 111						No. Type				est P		F001, F002 F005	
b.													
c.													
d.													
J. Additional Descriptions for Materials Listed Above a. CH30421 - Drill Cuttings D-12 Containers: PARSIN20425701 25901-07, 26401-06, 26501-03						K. Handling Codes for Wastes Listed Above							
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name						Signature				Month Day Year			
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name						Signature				Month Day Year			
18. Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name						Signature				Month Day Year			
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name						Signature				Month Day Year			

APPENDIX H

PARSONS

406 West South Jordan Parkway, Suite 300 • South Jordan, Utah 84095 • (801) 572-5999 • Fax (801) 572-9069

Memorandum

To: Dean Reynolds, TEAD; Larry McFarland, TEAD
Copy: Maryellen Mackenzie, USACE; Carl Cole, USACE; Doug Mackenzie, USACE; Richard Jirik, Parsons; Jeff Bigelow, Parsons
From: Jan Barbas, Parsons
Date: Wednesday, November 17, 2004
Subject: TEAD SWMU-58 RFI - Waste Management

This letter is to recommend disposition of the contents of the Baker tank summarized in Table One. The waste was generated in association with equipment decontamination and development of wells D-12, D-13 and D-16.

The Baker tank sample was labeled IDW11. IDW11 was analyzed for total VOCs. Analysis was conducted by Ecology and Environment, Inc, Lancaster NY, a Utah Certified laboratory.

Results have been received as data packages and electronic data deliverables. Parsons has reviewed the data and found QC to be acceptable. Analytical results and case narrative are appended.

Listed Wastes Analysis:

Benzene at 0.590 µg/L, ethylbenzene at 23.3 µg/L, m,p-xylenes at 90.8 µg/L, naphthalene at 2.22 µg/L, o-xylene at 45.3 µg/L, methylene chloride 330 µg/L, and toluene at 2970 µg/L were detected. As a result it is recommended that the waste be classified as hazardous F001, F002 and F005 listed wastes.

Characteristic Wastes Analysis:

The waste is known to be primarily water. Therefore generator's reasonable knowledge may be used to exclude the characteristics of ignitability, reactivity and corrosivity.

No constituents were detected in excess of TCLP limits. Therefore no characteristic waste codes should be applied.

Land Disposal Restrictions Analysis:

Methylene chloride and toluene exceed land disposal restriction limits for wastewaters.



Disposition:

Parsons recommends that this waste be processed through the TEAD wastewater treatment facility.

Parsons will arrange to dispose of the waste per your written instructions.

From: McFarland, Larry [larry.mcfarland@us.army.mil]
Sent: Thursday, November 18, 2004 7:15 AM
To: Barbas, Jan; Bigelow, Jeff; colec@emh2.tooele.army.mil; reynoldd@emh2.tooele.army.mil; doug.d.mackenzie@usace.army.mil; Jirik, Richard; mcfarlal@emh2.tooele.army.mil; Maryellen.Mackenzie@usace.army.mil
Cc: Kubacki, Steve
Subject: RE: TEAD Phase II RFI Waste Management - Baker Tank
Richard

Based our discussions earlier this week concerning the disposal of the decon and development water from from monitoring wells D-12, D-13, and D-16 you indicated that analysis of the water detected toluene and methylene chloride. Based on this discussion TEAD concurred with your recommendation to dispose of the water at the Ground Water Treatment Plant. On 11/17/04, the TEAD Environmental Office received a copy of the analytical which listed other contaminants in addition to those we had discussed earlier. Based on the analysis provided, the Ground Water Treatment Plant is not permitted to treat all of these constituents. As we are not permitted to to treat all of the detected contaminants, the water **CAN NOT** be disposed of at the treatment facility. Parsons should make arrangement to dispose of the water offsite.

Larry McFarland
Environmental Office, SJMTE-CS-EO
1 Tooele Army Depot, Building 8
Tooele, Utah 84074-5003
Phone (435) 833-3235 Fax (435) 833-2839
larry.mcfarland@us.army.mil
mcfarlal@emh2.tooele.army.mil



Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: PARSONS ENGINEERING SCIENCE, INC.

Project: Tooele RCRA Phase II

Lab Order: 0411048

CASE NARRATIVE

A trip blank labeled IDWTB4 was received with the IDW12 sample (COC 910). It was not analyzed per Jan Barbas' direction on November 3, 2004.

GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

Sample Analysis

The volatile samples were determined to be at a pH of 1.

The sample was analyzed within hold time.

Sample IDW12 exceeded the calibration range for methylene chloride and toluene. It was reanalyzed at a 100-fold dilution and both sets of results are reported.

Calibration and Tunes

All initial and continuing calibrations were acceptable.

Manual integrations were not required.

QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All laboratory control sample recoveries were acceptable.

All internal standard area responses were acceptable.

Tony Bogolin

Project Manager

November 16, 2004



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Lancaster, New York 14086-
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

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Order: 0411048
Client: Parsons Engineering Science, Inc.
Subject: Tooele RCRA Phase II

DATES SUMMARY REPORT

B) Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type DF	#Analytes F
1048-01A IDW12	Water	Low Level VOCs by Method 8260B	11/2/2004 2:30:00 PM	11/3/2004 8:50:00 AM	14:C 11/16/2004 2:30:00 PM	11/13/2004 8:33:00 AM 1060855	SAMP 1	21

From: C-Collection / R- Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analyzed" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analyzed" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date time of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests... "Analyzed" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.



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NYS ELAP ID#: 10486

Client: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Work Order: 0411048

Method References

GCMS Volatiles

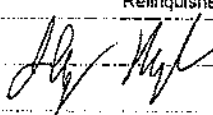

Parsons, Tooele - VOCs, Low Level by GCMS Method
8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical
Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes
all Updates). U.S. Environmental Protection Agency, Office of Solid
Waste and Emergency Response.

CHAIN OF CUSTODY PARSONS COC ID: 909		Project Name: Tooele Industrial Area		Contractor: Parsons - SLC		Parsons Point of Contact: Jan Barbas 406 W. South Jordan Parkway					
		Project Manager: Ed Staes		Installation: TEAD		Suite 300 South Jordan, Utah 84095					
		Sample Coordinator: Jeff Bigelow		Sample Program: Shallow Soil Sampling		(801) 572-5999 FAX (801) 572-9089					

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
	IDW12	IDW12	WW	B	N	1	11-2-04	14:30	JJB			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN	4	3			11020401	IDW sample for Baker Tank PARSN20426801 (Well Development + Decontamination work for wells D-12, D-13, and D-16)				

IDW sample for
Baker Tank PARSN20426801
(Well Development + Decontamination work
for wells D-12, D-13, and D-16)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11-2-04 16:00		11-3-04 8:50

CHAIN OF CUSTODY PARSONS COC ID: 910	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
	IDWTB4	IDWTB4	WQ	NA	TB	1	11-2-04	14:30	JJB			1
	Analysis	Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN	4	1								

Associated with truck water
sample IDW12

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeff Bigelow</i>	11-2-04 16:00	<i>Dr. [Signature]</i>	11-2-04 8:50



Cooler Receipt Form

No. of Packages:	1	Date Received:	11-3-04
Package Receipt No.:	14894	Project or Site Name:	
Client:	ForSens		

A. Preliminary Examination and Receipt Phase		Circle One		
1. Did coolers come with airbill or packing slip?		Yes	No	NA
Circle carrier here and print airbill number below: <u>Fed Ex</u> Airborne Client Other <u>UPS</u> Shipped as high hazard or dangerous goods? <u>PS</u>				
2. Did cooler(s) have custody seals?		Yes	No	NA
3. Were custody seals unbroken and intact on receipt?		Yes	No	NA
4. Were custody seals dated and signed?		Yes	No	NA
5. How was package secured? <input type="checkbox"/> Not secured <input type="checkbox"/> Fiberglass Tape <input checked="" type="checkbox"/> Plastic		Yes	No	NA

B. Unpacking Phase					
6. Date cooler(s) opened: <u>11-3-04</u>		Cooler(s) opened by: <u>DKull</u> (Signature)			
7. Was a temperature blank vial included inside cooler(s)?		Yes	No	NA	
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*					
Airbill No.	Temp. °C	Airbill No.	Temp. °C	Airbill No.	Temp. °C
<u>84572785</u>	<u>496</u>				
Thermometer No.: <u>234</u>		Correction Factor: <u>0.0</u>		*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.	
8. Were the C-O-C forms received?		Yes	No	NA	
C-O-C forms numbers if present:					
9. Was enough packing material used in cooler(s)?		Yes	No	NA	
Type of material: <input type="checkbox"/> Vermiculite <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Other					
10. If cooling was required, what was the means (type ice) of cooling used: <input type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Blue <input type="checkbox"/> Other				NA	
11. Were all containers sealed in separate plastic bags?		Yes	No	NA	
12. Did all containers arrive unbroken and in good condition?		Yes	No	NA	
13. Interim storage area if not logged:					
In: Date _____ Time _____		Signature _____			
Out: Date _____ Time _____		Signature _____			

C. Login Phase			
Samples Logged in By Signature: <u>Wells</u>	Date: <u>11/3/04</u>		
14. Were all container labels complete (e.g. date, time preserved)?	Yes	No	NA
15. Were all C-O-C forms filled out properly in black ink and signed?	Yes	No	NA
16. Did the C-O-C form agree with containers received?	Yes	No	NA
17. Were the correct containers used for the tests requested?	Yes	No	NA
18. Were the correct preservatives listed on the sample labels?	Yes	No	NA
19. Was a sufficient sample volume sent for the tests requested?	Yes	No	NA
20. Were all volatile samples received without headspace?	Yes	No	NA

*Prepare a PM Notification form (E-051)



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Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW12

Lab Order: 0411048

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/2/2004 2:30:00 PM % Moist:

Lab ID: 0411048-01A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/13/2004 8:33:00 AM	LINUS_041113A	MRD
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	0.590	J	1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	23.3		1.00	µg/L	1			
m,p-Xylene	90.8		1.00	µg/L	1			
Methylene chloride	332	E	2.00	µg/L	1			
Naphthalene	2.22		1.00	µg/L	1			
o-Xylene	45.3		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	736	E	1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr: 1,2-Dichloroethane-d4	99		70 - 130	%REC	1	11/13/2004 8:33:00 AM	LINUS_041113A	MRD
Surr: 4-Bromofluorobenzene	93		70 - 130	%REC	1			
Surr: Toluene-d8	96		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



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Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW12

Lab Order: 0411048

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/2/2004 2:30:00 PM % Moist:

Lab ID: 0411048-01A

Sample Type: DL

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		100	µg/L	100	11/14/2004 6:12:00 PM	LINUS_041114B	MRD
1,1,2-Trichloroethane	ND		100	µg/L	100			
1,1-Dichloroethane	ND		100	µg/L	100			
1,1-Dichloroethene	ND		100	µg/L	100			
1,2-Dichloroethane	ND		100	µg/L	100			
1,2-Dichloropropane	ND		100	µg/L	100			
Benzene	ND		100	µg/L	100			
Carbon tetrachloride	ND		100	µg/L	100			
Chloroethane	ND		100	µg/L	100			
Chloroform	ND		100	µg/L	100			
cis-1,2-Dichloroethene	ND		100	µg/L	100			
Ethylbenzene	ND		100	µg/L	100			
m,p-Xylene	61.8	J	100	µg/L	100			
Methylene chloride	330		200	µg/L	100			
Naphthalene	ND		100	µg/L	100			
o-Xylene	23.4	J	100	µg/L	100			
Tetrachloroethene	ND		100	µg/L	100			
Toluene	2970		100	µg/L	100			
trans-1,2-Dichloroethene	ND		100	µg/L	100			
Trichloroethene	ND		100	µg/L	100			
Vinyl chloride	ND		100	µg/L	100			
Surr:1,2-Dichloroethane-d4	103		70 - 130	%REC	100	11/14/2004 6:12:00 PM	LINUS_041114B	MRD
Surr:4-Bromofluorobenzene	98		70 - 130	%REC	100			
Surr:Toluene-d8	91		70 - 130	%REC	100			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

A. GENERAL INFORMATION

GENERATOR EPA ID # **UT3213820894**

GENERATOR CODE (Assigned by Clean Harbors)

T00469

ADDRESS **Tooele Army Depot**

GENERATOR PROFILE No. **CH83147**

GENERATOR NAME **Tooele Army Depot**

CITY **Tooele**

STATE **UT** ZIP **84074**

PHONE:

CUSTOMER CODE (Assigned by Clean Harbors) **PAR1392**

ADDRESS **406 W South Jordan Parkway Suite 300**

CUSTOMER NAME: **Parsons Engineering Science Inc**

CITY **South Jordan**

STATE **UT** ZIP **84095**

B. WASTE DESCRIPTION

WASTE DESCRIPTION: **Purge water and decon water D12, D13, D16**

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

Development of monitoring wells and decontamination of drill rig equipment

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID <input checked="" type="checkbox"/> LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL		NUMBER OF PHASES/LAYERS <input checked="" type="checkbox"/> 1 2 3 TOP % BY VOLUME (Approx.) MIDDLE BOTTOM		VISCOSITY (If liquid present) <input checked="" type="checkbox"/> 1 - 100 (e.g. WATER) 101 - 500 (e.g. MOTOR OIL) 501 - 10,000 (e.g. MOLASSES) > 10,000		COLOR <u>Clear/Water</u>	
		ODOR <input checked="" type="checkbox"/> NONE MILD STRONG Describe:		BOILING POINT <= 95 °F > 95 °F 101 - 129 °F <input checked="" type="checkbox"/> >= 130 °F		MELTING POINT < 140 °F 140-200 °F > 200 °F	
				TOTAL ORGANIC CARBON <input checked="" type="checkbox"/> <= 1% 1-9% >= 10%			
FLASH POINT < 73 °F 73 - 100 °F 101 - 140 °F 141 - 200 °F <input checked="" type="checkbox"/> > 200 °F		pH <= 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 >= 12.5		SPECIFIC GRAVITY < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) <input checked="" type="checkbox"/> 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) > 1.2 (e.g. Methylene Chloride)		ASH < 0.1 0.1 - 1.0 1.1 - 5.0 5.1 - 20.0 Actual:	
Actual:		Actual:		BTU/LB <input checked="" type="checkbox"/> < 2,000 2,000-5,000 5,000-10,000 > 10,000 Actual:			
				VAPOR PRESSURE (for liquids only) mm Hg			

D. COMPOSITION (List the complete composition of the waste, include any inert components and /or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN -- MAX	UOM	CHEMICAL	MIN -- MAX	UOM
Benzene	0.000 -- 0.000	PPB			
Ethylbenzene	0.000 -- 23.000	PPB			
m,p-Xylene	0.000 -- 90.000	PPB			
Methylene chloride	0.000 -- 332.000	PPB			
o-Xylene	0.000 -- 45.000	PPB			
Toluene	0.000 -- 736.000	PPB			
Water	99.000 -- 100.000	%			
Napthalene	0.000 -- 2.000	PPB			

ANY METAL OBJECTS PRESENT?

YES ☐ NO ☒

If yes include dimension

E. CONSTITUENTS -- Are these values based on testing or knowledge?

☐ Knowledge

☒ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. If based on knowledge, basis of knowledge must be provided below

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CAESIUM	1.0		
D007	CHROMIUM	5.0		
D008	LEAD	5.0		
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		

RCRA	VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D018	BENZENE	0.5		0.0
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D028	1,2-DICHLOROETHANE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7		
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		

RCRA	SEMI-VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D023	o-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D030	2,4-DINITROTOLUENE	0.13		
D032	HEXACHLOROBENZENE	0.13		
D033	HEXACHLOROBTADIENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		

RCRA	PESTICIDES AND HERBICIDE	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D012	ENDRIN	0.02		
D013	UNDAE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008		

OTHER METALS	MIN	MAX	UOM
ALUMINUM			
ANTIMONY			
BERYLLIUM			
CALCIUM			
COPPER			
MAGNESIUM			
MOLYBDENUM			
NICKEL			
POTASSIUM			
SILICON			
SODIUM			
THALLIUM			
TIN			
VANADIUM			
ZINC			

NON-METALS	MIN	MAX	UOM
BROMINE			
CHLORINE			
FLUORINE			
IODINE			
SULFUR			

OTHER NON-METALS	MIN	MAX	UOM
AMMONIA			
REACTIVE SULFIDE			
CYANIDE-TOTAL			
CYANIDE AMENABLE			
CYANIDE REACTIVE			

OTHER CHEMICALS	MIN	MAX	UOM
PHENOL			
Total Petroleum Hydrocarbons			

OTHER	PCBs
HOCs <input checked="" type="checkbox"/> NONE < 1000 PPM >= 1000 PPM	<input checked="" type="checkbox"/> NONE < 50 PPM >= 50 PPM IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761? YES <input checked="" type="checkbox"/> NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

 YES ☒ NO

(If yes, explain)

ASBESTOS

DEA REGULATED SUBSTANCES

DIOXIN

EXPLOSIVE

HERBICIDE

FUMING / SMOKING WASTE

NONE OF THE ABOVE

INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT

OXIDIZER

OSHA REGULATED CARCINOGENS

PESTICIDE

POLYMERIZABLE

RADIOACTIVE

REDUCING AGENT

SHOCK SENSITIVE

SPONTANEOUSLY IGNITES WITH AIR

THERMALLY SENSITIVE

WATER REACTIVE

F. REGULATORY STATUS

☒ YES ☐ NO USEPA HAZARDOUS WASTE?
 F001 F002 F003 F005
 YES ☒ NO DO ANY STATE WASTE CODES APPLY?
☒ YES ☐ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?
 LDR CATEGORY: This is subject to LDR.
 VARIANCE INFO:
☒ YES ☐ NO IS THIS A WASTEWATER PER 40 CFR PART 268.2?
 YES ☒ NO IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D0011, D012-D017
 NON-WASTEWATERS, OR D018- D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT
 YES ☒ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?
 YES ☒ NO IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?
 IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 4
 YES ☒ NO IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT
 RECOVERY, OR PETROLEUM REFINERY PROCESS?)
 YES ☒ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?
 YES ☒ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?
 YES ☒ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN
 77 KPa (11.2PSIA)?
 YES ☒ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

G. D.O.T INFORMATION: (Include proper shipping name, hazard class and ID number).

 US D.O.T DESCRIPTION: Hazardous waste, liquid, n.o.s., (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene) , 9,
H. TRANSPORTATION REQUIREMENTS

 ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY ☒ OTHER Varies

IF BULK LIQUID OR BULK SOLID PLEASE INDICATE THE EXPECTED NUMBER OF LOADS PER SHIPPING FREQUENCY

CONTAINERIZED
☐ 0 CONTAINERS/SHIPMENT

STORAGE CAPACITY

CONTAINER TYPE

CUBIC YARD BOX

PALLET

TOTE TANK

OTHER:

DRUM SIZE:

CONTAINER MATERIAL:

☒ STEEL

FIBER

PLASTIC

OTHER

☒ **BULK LIQUID**

 GALLONS/SHIPMENT: 1,000Min -6,000 Max GAL

☒ FROM TANKS: TANK SIZE 6,000 GAL

FROM DRUMS

VEHICLE TYPE:

VAC TRUCK

☒ TANK TRUCK

RAILROAD TANK CAR

CHECK COMPATIBLE STORAGE MATERIAL

☒ STEEL

☒ RUBBER LINED

☒ DERAKANE

OTHER

☒ STAINLESS STEEL

☒ FIBERGLASS LINED

BULK SOLID

SHIPMENT UOM: TON YARD

PER SHIPMENT: 0.00 MIN 0.00 MAX

STORAGE CAPAC: TON/YC

VEHICLE TYPE:

DUMP TRAILER

ROLL OFF BOX

INTERMODAL ROLLOFF BOX

CUSCO/VACTOR

OTHER

I. SPECIAL REQUEST

SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS:

SPECIAL WASTE HANDLING REQUIREMENTS

OTHER COMMENTS OR REQUESTS:

J. BIENNIAL / ANNUAL REPORTING INFORMATION

 SIC CODE 9711 SOURCE CODE A09 FORM CODE B119 ORIGIN CODE 2
K. SAMPLE STATUS

 REPRESENTATIVE SAMPLE HAS BEEN SUPPLIE ☒ YES ☐ NO SAMPLED BY DATE SAMPLED WHERE SENT

GENERATORS CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples
 submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants
 Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT)

TITLE

DATE

FOR CLEAN HARBORS USE ONLY

CHI REPRESENTATIVE COMPLETING PROFILE:

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address		TOOELE ARMY DEPOT ENVIRONMENTAL OFFICE, SJMTE-CS EO BUILDING 8, ATTN: DAVID REYNOLDS, TOOELE, UT 84074		A. State Manifest Document Number		
4. Generator's Phone (435) 833-3504		6. US EPA ID Number CAT00624247		B. State Generator's ID		
5. Transporter 1 Company Name MP Environmental		8. US EPA ID Number		C. State Transporter's ID		
7. Transporter 2 Company Name		10. US EPA ID Number		D. Transporter's Phone (435) 843-7802		
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptek Road Aragonite, UT 84029		12. Containers		E. State Transporter's ID		
		13. Total Quantity		F. Transporter's Phone		
		14. Unit Wt/Vol		G. State Facility's ID		
		15. Waste No.		H. Facility's Phone (801) 323-8100		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers		13. Total Quantity		
a. HM Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene), 9, NA3082, PGIII		No. Type		14. Unit Wt/Vol		
b.				15. Waste No.		
c.						
d.						
J. Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above				
a. CH83147B - Decon and Development Water		D-2 D-13 D-16		DARS N20926801		
15. Special Handling Instructions and Additional Information						
Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.						
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name		Signature		Month Day Year		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Month Day Year		
Printed/Typed Name		Signature		Month Day Year		
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Month Day Year		
Printed/Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						
Printed/Typed Name		Signature		Month Day Year		

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. 24015	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS EO, Building 8, Attn: Dean Reynolds, Tooele, UT 84074					A. State Manifest Document Number
4. Generator's Phone (435) 833-3504					B. State Generator's ID
5. Transporter 1 Company Name MP Environmental		6. US EPA ID Number CAT00624247			C. State Transporter's ID
7. Transporter 2 Company Name		8. US EPA ID Number			D. Transporter's Phone (435) 843-7802
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptans Road Aragonite, UT 84029		10. US EPA ID Number UTD981552177			E. State Transporter's ID
				F. Transporter's Phone	G. State Facility's ID
				H. Facility's Phone (801) 323-8100	
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers No. Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. <input type="checkbox"/> HM	Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene), 9, NA3082, PG III			usc. P	P001, P002, P003, P005
b. <input type="checkbox"/>					
c. <input type="checkbox"/>					
d. <input type="checkbox"/>					
J. Additional Descriptions for Materials Listed Above a. CH831478 - Decon and Development Water D-12, D-13, D-16		K. Handling Codes for Wastes Listed Above RA-2 SN20426801			
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name		Signature		Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Month Day Year	
Printed/Typed Name		Signature		Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Month Day Year	
Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name		Signature		Month Day Year	

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. 4317	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074				A. State Manifest Document Number		
4. Generator's Phone (435) 833-3504				B. State Generator's ID		
5. Transporter 1 Company Name MP Environmental				C. State Transporter's ID		
6. US EPA ID Number CA100624247				D. Transporter's Phone (435) 843-7802		
7. Transporter 2 Company Name				E. State Transporter's ID		
8. US EPA ID Number				F. Transporter's Phone		
9. Designated Facility Name and Site Address Clean Harbor's Aragonite Facility 11600 N. Aptees Road Aragonite, UT 84029				G. State Facility's ID		
10. US EPA ID Number UTD981552177				H. Facility's Phone (801) 323-8100		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene), 9, NA3082, PG III	001	TT		est. P	F001, F002 F003, F005
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above a. CH83147B - Decor and Development Water				K. Handling Codes for Wastes Listed Above P-HS N20426801 Rinseout water		
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 333-2015 ERG #171						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name Larry McFarland		Signature Larry McFarland		Month Day Year 1/23/04		
17. Transporter 1 Acknowledgement of Receipt of Materials		Printed/Typed Name Tom Porter		Signature Tom Porter		Month Day Year 1/23/04
18. Transporter 2 Acknowledgement of Receipt of Materials		Printed/Typed Name		Signature		Month Day Year
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name		Signature		Month Day Year		